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ISRAELI NUCLEAR WEAPONS
AND
WAR IN THE MIDDLE EAST

by

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December, 1997

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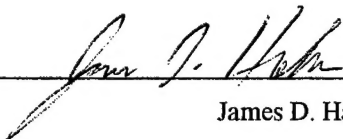Submitted in partial fulfillment of the
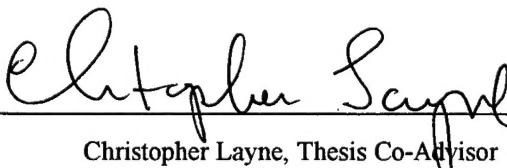requirements for the degree of
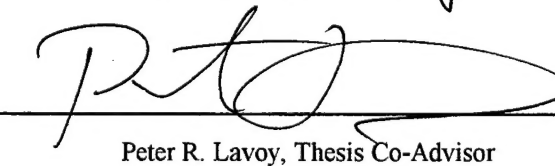
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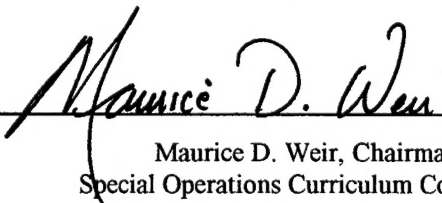from the

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ABSTRACT

This thesis examines the influence of the Israeli nuclear weapons capability on conflict in the Middle East. There are two perspectives regarding the impact of nuclear proliferation on strategic stability. Three paths to strategic instability are examined: preventive attacks, preemptive attacks, and the escalation of conventional conflict to nuclear war. The optimistic perspective argues that nuclear weapons make preventive and preemptive attacks less likely, and keep conventional conflict from escalating to nuclear war. The pessimistic perspective argues the opposite - that nuclear weapons make preventive and preemptive attacks more likely, and raise the likelihood of escalation to nuclear war. My analysis of the Israeli cases shows that "opaque" nuclear proliferation decreases the pressure for preventive attacks, increases the chances for miscalculation, and creates sufficient concern about nuclear weapons to reduce the likelihood of preemptive attacks. Two factors help reduce the risk of nuclear proliferation as posed by proliferation pessimists, opaque nuclear weapons programs and nondeclaratory nuclear weapons policies. The implication of this research is that if the United States cannot dissuade a country from going nuclear, it should reinforce its incentives to maintain opacity and a nondeclaratory policy. Particular attention should be given to states which resist these efforts, as they represent the greatest risk of nuclear weapons use.

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I. INTRODUCTION

Nuclear nonproliferation is a top U.S. policy goal. Despite the apparent nonproliferation successes recently in Iraq and North Korea, the continued ability of the international community to prevent the spread of nuclear weapons is by no means assured. Therefore it is important to identify the conditions under which the spread of nuclear weapons is especially dangerous as well as the conditions under which nuclear proliferation produces benign or stabilizing effects. This thesis examines the strategic effects of Israel's nuclear capability as a means for evaluating the general political and military consequences of nuclear proliferation.

A. RESEARCH QUESTION

My specific research objective is to determine the impact of Israel's nuclear capability on conflict and war in the Middle East. The nature of nuclear proliferation has changed since the five declared states attained their nuclear weapons capabilities. The latest states to gain nuclear capabilities - Israel, India, Pakistan, and South Africa - all developed the means to build nuclear weapons in secret. South Africa dismantled its nuclear program in 1991.[1] The three remaining de facto, or "opaque," nuclear powers - Israel, India and Pakistan - officially state that while they have the ability to build nuclear weapons, they have not actually done so. Despite these nondeclaratory policies, the potential of the de facto nuclear weapons states to produce nuclear weapons has affected the way they treat, and are treated by, other states. Given the nature of the nuclear

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[1] Leonard S. Spector, Mark G. McDonough, and Evan S. Medeiros, *Tracking Nuclear Proliferation: A Guide in Maps and Charts, 1995* (Washington DC: The Carnegie Endowment for International Peace, 1995), 161.

nonproliferation regime, the trend toward opaque nuclear proliferation is likely to continue in the future. Therefore, an understanding of its effects is necessary for a well informed U.S. policy.

B.   METHODOLOGY

This thesis examines three threats to international strategic stability: preventive attacks, preemptive attacks, and the escalation of conventional conflict to nuclear war. The Middle East is the best source of empirical data for the examination of these threats due to the occurrence of actual conflict and the long term presence of a military nuclear capability. There are two general perspectives regarding the impact of nuclear weapons on international stability, "proliferation optimism" and "proliferation pessimism." The theories upon which the arguments of proliferation optimism and pessimism are based are tested by deriving hypotheses from the theories, and comparing these hypotheses to evidence from historical accounts of conflict in the Middle East. In some instances empirical evidence is vague and requires varying degrees of interpretation. In these instances my conclusions are be subject to debate.

The two main perspectives regarding the effects of nuclear proliferation are "proliferation pessimism" and "proliferation optimism." Proliferation optimism is sometimes referred to as deterrence optimism. Proliferation pessimists, such as Scott Sagan, argue that the spread of nuclear weapons makes the world a more dangerous place. Proliferation optimists, drawing on the work of Kenneth Waltz, argue that the proliferation of nuclear weapons actually might improve international stability.[2] Peter

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[2] Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate* (New York: W. W. Norton and Company, 1995).

Lavoy helped to focus the proliferation debate when, in the process of reviewing and consolidating the arguments to date, he distilled a list of twelve core concerns about the consequences of nuclear proliferation.[3] Lavoy's treatment of preventive attacks, preemptive attacks, the escalation of conventional conflict to nuclear war, and the unauthorized use of nuclear weapons serves as a framework to examine the two sides of the debate and to derive predictions about state and organizational behavior resulting from Israeli nuclear proliferation.

This thesis assumes the existence of, or potential for the existence of, Israeli nuclear weapons. This assumption is based on speculation in open source materials and public debate. I am not now, nor have I ever been, in a position with access to classified materials which relate to this subject. My assumption of an Israeli nuclear weapons capability or of Israeli nuclear weapons is merely an assumption, and should not be interpreted as anything more.

C. HYPOTHESES

1. Preventive Attack

Proliferation optimism asserts that preventive attacks against states developing nuclear weapons are unlikely due to the inability of the aggressor to know for sure that the victim does not already possess nuclear weapons. Preventive attacks are also unlikely due to the difficulty in ensuring the complete destruction of the target's nuclear weapons development effort. Either instance could lead to nuclear retaliation either immediately or in the future. The potential for unacceptable damage dictates that such retaliation ought

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[3] Peter R. Lavoy, "The Strategic Consequences of Nuclear Proliferation: A Review Essay," *Security Studies* 4, no. 3 (Summer 1995).

not to be risked. Proliferation pessimism asserts that militaries have organizational

dynamics which prejudice them in favor of preventive war. These biases make preventive

attacks likely, even in the face of potentially serious consequences.

Preventive attack arguments are perhaps better evaluated within the framework of

the models Graham Allison developed to explain the Cuban missile crisis. Two of his

models are especially useful in this discussion: the rational actor model and the

organizational behavior model (Models I and II, respectively).[4] The rational actor model

portrays state behavior as the outcome of calculations made by the state as a unitary actor

which maximizes the relative utility of the options available to it.[5] The organizational

behavior model views state behavior as the result of the *"outputs* of large organizations

functioning according to standard patterns of behavior."[6] Model I relates to proliferation

optimism and hypothesizes that states in the Middle East, if faced with an adversary who

is developing nuclear weapons, will make their decisions regarding prevention based on an

evaluation of the costs and benefits of the attack. Model II relates to proliferation

pessimism and hypothesizes that if faced with an adversary who is developing nuclear

weapons, states will make their decision whether or not to preventively attack based on

organizational input from the military, which likely favors execution of preventive strikes.

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[4] Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Harvard: Harper Collins, 1971).

[5] Ibid., pp. 28-32.

[6] Ibid., p. 67, (emphasis in original).

2.   Preemptive Attack

The security dilemma and offense-defense balance theory provide a useful framework for the analysis of the effects of nuclear weapons on the likelihood of preemptive attacks. These theories predict that if offensive military actions have a sufficient advantage over defensive actions, preemptive attacks are likely.[7]

Proliferation optimism maintains that it is relatively easy for new nuclear states to create secure second strike nuclear forces.[8] The survivability and destructive power of nuclear weapons combine to form a defensive advantage which strongly discourages preemptive attacks. Proliferation pessimism anticipates that organizational pathologies inherent in militaries lead to the failure to develop secure second strike nuclear forces.[9] This failure creates an offensive advantage, encouraging preemptive attacks.

Proliferation optimism hypothesizes that if the Arab states suspect that Israel has nuclear weapons, their perception of a defensive advantage will lead them to forego preemptive strikes against Israel. Proliferation pessimism hypothesizes that if the Arabs or the Israelis believe that there is an advantage in offensive operations, they will preempt regardless of the existence of nuclear weapons.

3.   Escalation of Conventional Conflict to Nuclear War

There is a rich literature regarding the causes of military escalation. These causes include the security dilemma, the uncertain nature of war, organizational pathologies of

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[7] Dan Reiter, "Exploding the Powder Keg Myth: Preemptive Wars Almost Never Happen," *International Security* 20, no. 2, (Fall 1995), 9.

[8] Sagan and Waltz, 110.

[9] Ibid., 67-68.

militaries, and military organizational culture. The nuclear proliferation debate concerning the escalation of conventional conflict to nuclear war evolves into a debate over a sub-argument of only one of these causes: the probability of the unauthorized use of nuclear weapons.

Waltz argues that the threat of escalation to nuclear war prevents new nuclear powers from engaging in conventional conflicts.[10] This assertion must be dismissed in the face of significant evidence to the contrary. Evidence does suggest that intentional nuclear wars are unlikely.

Other proliferation optimists contend that new nuclear states face reduced time pressures and less susceptibility to organizational pathologies due to; small arsenals sizes, their propensity to choose concealment strategies rather than high states of readiness, and the benefits of opaque proliferation.

Proliferation pessimists maintain that new nuclear states have an increased risk of unauthorized use due to pressures to keep their nuclear weapons at high states of readiness, and because opaque proliferation leaves these states ill prepared to maintain control of their nuclear forces in crises.[11]

Insufficient evidence exists to support a test of hypotheses. Some evidence can be examined with respect to an historical explanation of the arguments, but no definitive conclusions are supported by empirical evidence regarding escalation.

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[10] Ibid., 110.

[11] Ibid., 80-85, and Peter D. Feaver, "Correspondence: Proliferation Pessimism and Emerging Nuclear Powers," *International Security* 22, no. 2, (Fall 1997), 191.

D.   CONCLUSIONS

1.   Preventive Attack

The Model I hypothesis regarding preventive attack gains the most support from the evidence of the two cases examined: the Egypt's plan to attack the Dimona reactor in 1967, and the 1981 Israeli raid on the Iraqi Osiraq reactor. Both the Egyptians in 1967 and the Israelis in 1981 had evidence of nuclear weapons development by the state they targeted. In the Dimona case, competing interests led Nasser to forego a preventive attack, which supports the Model I hypothesis. In the Osiraq case, evidence suggests that military biases toward preventive attacks might be necessary, but are not sufficient to produce the attacks. Prior to Menachem Begin's election, the Israeli Labor government faced the same pressures as Begin to preventively strike the Iraqi reactor, yet it refrained from doing so. The evidence is inconclusive regarding the mechanism which led to the decision for the raid, therefore neither hypothesis can claim definitive support. There is also some evidence in each case to indicate that both the proliferation optimism and proliferation pessimism arguments are valid. The Egyptian plans in 1967 to strike Israel's Dimona reactor are evidence of a military bias for preventive attacks, as predicted by proliferation pessimism. The Osiraq raid failed to terminate Iraq's quest for nuclear weapons, as predicted by proliferation optimism, although this did not prevent the attack.

2.   Preemptive Attack

The empirical evidence from the Middle East lends more support to the hypothesis of proliferation optimism than to that of proliferation pessimism. The events of the 1973 Arab-Israeli war can be interpreted as evidence of Egyptian uncertainty regarding Israeli

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nuclear capabilities. The restraint shown by the Egyptians in not attacking strategic targets in Israel tends to support the hypothesis that the concerns about nuclear weapons reduce the likelihood of preemptive strikes.

The empirical evidence does not lend much support for the hypothesis of proliferation pessimism. Israel maintained a belief in an offensive advantage in both 1967 and 1973. In 1967 it preempted; in 1973 it did not. This points to other factors exerting influence on the decision to preempt beyond the vulnerability of an enemy's forces. The consideration of factors beyond vulnerability and offensive advantage weakens the argument that these factors alone lead to preemptive attacks. The fact that the Arab states did not possess of nuclear weapons during Israel's 1967 preemptive attack decreases the support this incident lends to the pessimistic hypothesis.

Nuclear weapons fundamentally change the definition of success in preemptive attacks. Opacity further complicates Sagan's argument. The fact that it is widely accepted that Israel has the capacity to produce nuclear weapons, yet uncertainty continues regarding the existence of the weapons themselves, is evidence that in the Israeli case the organizational pathologies which Sagan argues are present have not yet produced the postulated vulnerabilities.

3. Escalation of Conventional Conflict to Nuclear War

War in the Middle East presents a difficult environment for the pessimist argument. The lack of a nuclear armed adversary mitigates against Israel manifesting the problems postulated by the pessimists because of the lack of a threat requiring an immediate nuclear response. As expected, the evidence tends to support the arguments of proliferation

optimism. Syrian "strategic" rocket attacks on the Israeli homeland in 1973 did not provoke nuclear retaliation. This might indicate that Israel nuclear forces were not in a condition of hair trigger, launch-on-warning readiness. Some evidence indicates that Israeli nuclear forces were not operational at all. This would support the optimist argument that opaque forces can be kept at a low state of readiness. The opacity of the Israeli nuclear weapons program strongly indicates a concealment strategy.

The only support for the pessimist's argument is disputed evidence that Israel generated an operational nuclear capability in the midst of the 1973 crisis, and that uncertainty gripped the Israeli government. These incidents are hotly debated. If these events occurred they would lend support to the pessimist argument. The fact that no unauthorized use occurred somewhat supports the optimist's hypothesis.

E.   OUTLINE OF THE THESIS

I begin the next chapter with a clarification of terminology relevant to the proliferation debate. There is some confusion in the recent literature regarding the definitions of opacity, nondeclaratory status, and non-weaponization. I deal with each of these, then provide a brief overview of the history of Israel's nuclear program. In Chapters Three through Five, I discuss the theories applicable to each of the three concerns, derive hypotheses, and present evidence to test the hypotheses regarding preventive attacks, preemptive attacks, and the escalation of conventional conflict to nuclear war. Each issue is treated in a separate chapter. Chapter Six includes implications of my findings, and my conclusion.

The most important conclusion of the study is that the risks which proliferation pessimists associate with nuclear proliferation are reduced by two main factors: opaque nuclear weapons programs and nondeclaratory nuclear weapons policies. The benefits which result from these factors include decreased motivation for preventive or preemptive attacks, isolation of nuclear forces from the supposed military organizational pathologies, less military reliance on nuclear weapons, with attendant decreases in the likelihood of use, and lower likelihood of military acceptance of nuclear weapons legitimacy. If nonproliferation policy fails, U.S. policy should focus on reinforcing the incentives for new nuclear states to maintain opacity and nondeclaratory postures with respect to nuclear weapons. Particular attention should be given to states which resist doing so, as they represent the greatest risk of nuclear weapons use.

II. TERMINOLOGY AND BACKGROUND

A.   INTRODUCTION

My discussion of the nonproliferation debate and evidence from the Middle East

requires an understanding of some commonly confused terms and some familiarity with

the historical background of the Israeli case. Recent literature concerning the impact of

nuclear proliferation shows a lack of consensus regarding the definitions and concepts of

opacity, declaratory status, and weaponization of nuclear bombs. The lack of

conceptually distinct definitions creates confusion that hampers the debate. In the interest

of clarifying the nuclear proliferation debate, I offer several definitions.

"Opacity" refers to the ability of a state to preserve the secrecy of its nuclear

weapons program. A state's "declaratory status" with respect to nuclear weapons results

from a policy decision, and is conceptually independent of the degree of opacity.. The

degree of "weaponization" of a state's nuclear weapons refers to how close to an

operational status the state maintains those weapons. Each of these factors influence the

impact of nuclear weapons on international stability in a slightly different manner.

Likewise, the reason(s) a state chooses to acquire nuclear weapons has an impact on its

decisions regarding opacity, declaratory status and weaponization. In the following

chapter, I explore distinct definitions for these key terms, outline the difference in impact

of each factor, and briefly review the historical background of the Israeli nuclear program.

B.   TERMINOLOGY

Three terms are commonly used, and confused, when describing the nuclear

weapons programs of new nuclear states. These terms are: opaque, nondeclared, and non-

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weaponized. While in practice these factors tend to be coincidental, conceptually they are distinct.

1. Opacity

Benjamin Frankel and Avner Cohen develop a concept of opacity in *Opaque Nuclear Proliferation*.[12] In lieu of a definition, they list the features which they say characterize opaque proliferators, including: denial the possession of nuclear weapons, insulation of nuclear related organizations from the military and government, lack of nuclear weapons testing, abstinence from direct nuclear threats, lack of publicly declared nuclear military doctrine, avoidance of military deployment of nuclear weapons, and absence of open debate concerning the costs and benefits of nuclear weapons.[13] Lumping these characteristics together tends to create conceptual confusion.

By my definition, denial of nuclear weapons possession is more properly a characteristic of declaratory status. Opacity does not require insulation of nuclear organizations, although it benefits from it. The deployment of nuclear weapons is likewise not prevented by opacity, but might serve to jeopardize it. In the strictest sense, the opacity of a state's nuclear weapons program refers to the success the country has in keeping their nuclear weapons development secret. In my narrower conception, opacity produces three main effects of interest to this study.

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[12] Avner Cohen and Benjamin Frankel, "Opaque Nuclear Proliferation," in *Opaque Nuclear Proliferation: Methodological and Policy Implications*, ed. Benjamin Frankel (London: Frank Cass and Company Ltd., 1991).

[13] Ibid., 21-22.

Opaque programs increase the difficulty of adversary states' intelligence gathering efforts. The pressure on, and ability of, opposing countries to strike a state's nuclear forces or infrastructure is affected by the state's ability to maintain secrecy. Several factors mitigate against the maintenance of opacity.

First, perfectly concealed nuclear weapons have no deterrent value, as Dr. Stangelove testifies. Periodically, de facto nuclear weapons states face security challenges. During a crisis it might be necessary to strengthen the state's deterrence, despite the political cost of partially revealing their nuclear potential. In other words, the credibility of the nuclear threat increases in importance relative to the costs of disclosure. In order to avoid as much of the cost of disclosure as possible, it is logical that states reveal only what is necessary in order to gain an acceptable level of deterrence. Over time, if the benefit of deterrence repeatedly overcomes the costs of disclosure, opacity erodes.

Second, states constantly must work to keep their programs secret, with no guarantee of success. The longer a program exists, the greater the number of people whose work exposes them to the programs secrets. As the number of people increase, so does the likelihood one of them will reveal the program's existence, as Mordecai Vanunu did with the Dimona facility.[14] The state's control over the degree of opacity is limited by the factors described above. Opacity affects the intelligence opportunities of a state's adversaries, the deterrent value of its nuclear weapons, and the degree to which the state is exposed to the costs of proliferation.

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[14] Seymore M. Hersh, *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy* (New York: Random House, 1991), 196-205.

2. Declaratory Status

A state's declarations regarding the status of its nuclear weapons results from a policy decision. A nondeclaratory nuclear weapons policy is an official statement indicating that the country has the capability to produce nuclear weapons, but that denies, or refuses to acknowledge, that it has done so. A state's declaratory policy is not necessarily tied to any particular degree of opacity. In practice, at some level of disclosure a nondeclaratory policy becomes nonsensical.

Opacity and declaratory status might be thought of as overlapping factors. Figure 1 shows the relationship of the two scales. The lower scale indicates the degree of opacity or transparency. One end of the scale is defined by total opacity, while total transparency defines the other end. Less opaque and partially transparent programs fall in between the extremes. The policy decision regarding declaratory status is superimposed over the opacity-transparency scale, with latitude regarding the exact point where a state switches from undeclared to declared.

Undeclared Nuclear Weapons		Declared Nuclear Weapons	
Total Opacity	Partial Opacity	Partial Transparency	Total Transparency
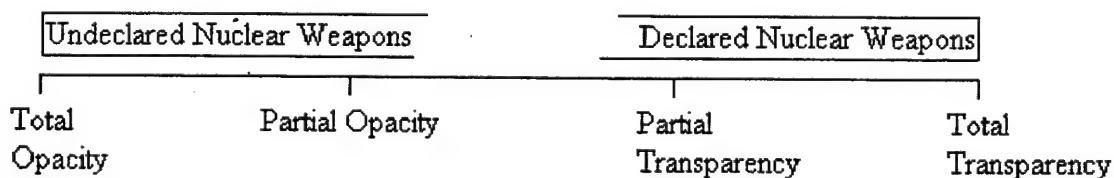
Figure 1. Opacity/Transparency Scale and Declaratory Status

A state has a high degree of control over its declaratory policy regarding nuclear weapons. Its decision regarding whether or not to maintain a nondeclaratory policy is indicative of the outcome of a cost-benefit analysis by the state. The knowledge of this

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outcome, which is obvious given the state's public policy, might be useful to adversaries during crises since it gives some indication of the state's cost-benefit calculations. If the state has previously determined that a non-declaratory status is in its best interest, those interests can be held at risk by an adversary willing to push the state into a situation which might require the unveiling of its nuclear weapons. The byproducts of a nondeclaratory status include the lack of a publicly articulated nuclear doctrine, and a decreased dependence of the military on nuclear options.

3.   Weaponization

"Weaponization" refers to the physical status or condition of a state's nuclear weapons. Non-weaponization is the absence of the production of nuclear weapons components, or the separate storage of unassembled components. Weaponization is conceptually different from opacity and declaratory status, but in practice non-weaponization tends to accompany opaque nuclear proliferation and a nondeclaratory nuclear weapons status. Like declaratory status, the degree of weaponization is a policy decision. Non-weaponization can be thought of as the lowest state of readiness. Proliferation pessimists agree that non-weaponization decreases the peacetime risk of unauthorized use and accidental war.[15] Non-weaponization also serves to preclude the manifestation of command and control pathologies.

The orientation of a state to nuclear weapons, expressed by its declaratory status and weaponization, as well as its success in maintaining the opacity of its nuclear weapons

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[15] Peter D. Feaver and Scott D. Sagan, "Correspondence," *International Security* 22, no. 2, (Fall 1997), 191-200.

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programs, influences state behavior and vulnerability to problems which might jeopardize strategic stability.

C.   HISTORICAL BACKGROUND

In return for Israeli participation in 1956 Suez crisis, France agreed to aid the Israeli nuclear program by helping to build the Dimona nuclear reactor complex.[16] Some evidence suggests that plutonium separation secretly began at Dimona in 1966. Around this same time, the design for the first Israeli nuclear weapon was completed, and French-Israeli missiles capable of carrying nuclear warheads were undergoing developmental testing.[17] Avner Cohen contends that Israel had a rudimentary operational nuclear weapons capability on the eve of the 1967 Six Days War.[18] It is important to understand the motivation for an Israeli nuclear weapon capability and the nature of the Israeli nuclear program in order to fully appreciate the impact of opacity and declaratory status on preventive and preemptive attacks, and the possibility of the escalation of conventional conflict to nuclear war in the Middle East.

1.   Motivation for Israeli Nuclear Weapons

Bradley Thayer outlines four competing explanations concerning why states chose nuclear proliferation. These include: prestige, bureaucratic politics, technological pull, and

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[16] Shlomo Aronson with Oded Brosh, *The Politics and Strategy of Nuclear Weapons in the Middle East* (Albany: State University of New York Press, 1992), 117.

[17] Avner Cohen, "Nuclear Arms in Crisis Under Secrecy: Israel and the 1967 War," Unpublished paper presented at NPS/MIIS Conference (August 1997), 4.

[18] Avner Cohen, "Cairo, Dimona, and the June 1967 War," *Middle East Journal* 50, no. 2 (Spring 1996), 191.

security.[19] He examine each of these and determines that security concerns are the best explanation for Israeli nuclear proliferation.[20] There are several factors which contributed to Israeli security concerns. These include: the Holocaust, Arab conventional military numerical superiority, and the potential threat from the Soviet Union.

The legacy of the Holocaust, which imbued an enduring sense of vulnerability in the Jewish people's psyche, is generally considered an underlying motivation for the development of Israeli nuclear weapons.[21] In addition to the potential threats to Israel's collective survival, the Holocaust illustrated the inadvisability of Israel placing its security in the hands of other states.[22] These concerns were manifested in David Ben Gurion's philosophy of self-reliance, which produced the beginnings of the Israeli nuclear program in the mid 1950s.[23] The inability to rely on allies was compounded by the second factor in Israeli insecurity, the Arab conventional military threat. Israel faced the potential of a unified Arab assault with overwhelming numerical superiority.[24] Although these security factors are considered by some to be a sufficient motivation for Israeli nuclear weapons development, there is an additional contributing security concern.[25]

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[19] Bradley A. Thayer, "The Causes of Nuclear Proliferation and the Utility of the Nuclear Nonproliferation Regime," *Security Studies* 4, no. 3 (Spring 1995), 468.

[20] Ibid., p. 496.

[21] Avner Cohen, "The Men and the Ethos that Made the Israeli Nuclear Program Possible," unpublished paper (10 December 1995), 1.

[22] Thayer, "Causes of Nuclear Proliferation," 491.

[23] Cohen, "Men and Ethos," 1-8.

[24] Thayer, "Causes of Nuclear Proliferation," 491.

[25] Alan Dowty, "Nuclear Proliferation: The Israeli Case," *International Studies Quarterly* 22, no. 1 (March 1978), 88.

In the 1956 Suez crisis, the Soviet Union threatened Israel with nuclear retaliation. Some participants contend that Israeli planning was preoccupied with the possibility of Soviet intervention into Arab-Israeli conflicts.[26] All of these factors combined in 1967. Israel felt abandoned by its allies in the weeks leading up to the war, and faced the possibility of annihilation at the hands of a numerically superior Arab military backed by the Soviet Union. The Six Days War is believed by some to have been the catalyst for Israeli nuclear weapons development.[27] If Cohen is correct, the nuclear weapons development was already underway and the Six Days War might have merely accelerated the program.

2. Characteristics of the Israeli Nuclear Weapons Program

Security concerns also determined the character of the Israeli arsenal. Three primary factors drove Israel to proliferate in an opaque manner and to adopt a nondeclaratory nuclear weapons policy. These include: the threat of Soviet intervention to counter Israeli nuclear weapons, Arab threats to engage in preventive or preemptive attacks, and the potential reaction of the United States to overt Israeli nuclear weapons.

There was a general perception in Israel that their introduction of nuclear weapons in the region would result in aid by the Soviet Union to the Arab states' development of nuclear weapons.[28] This was reinforced by an Egyptian claim that the Soviet Union had agreed to extend nuclear guarantees to Egypt in the event Israel obtained nuclear

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[26] Aronson, *Politics and Strategy*, 115-116.

[27] Benjamin Frankel, "The Brooding Shadow: Systemic Incentives and Nuclear Weapons Proliferation," in *The Proliferation Puzzle: Why Nuclear Weapons Spread,* ed. Zachary S. Davis and Benjamin Frankel, (London: Frank Cass, 1993), 52.

[28] Aronson, *Politics and Strategy*, 119.

weapons. While this claim was later retracted, the perception persisted.[29] Furthermore, Nasser declared that possession of a nuclear capability by Israel was sufficient justification for a preemptive attack by Egypt, as well as the development of an Egyptian nuclear weapon.[30] Finally, the United States had made nuclear nonproliferation a national priority. Israel was becoming dependent on the United States for military supplies and as a counterbalance to Soviet power in the Middle East.[31] The necessity to maintain good relations with the United States and the desire not to produce a Soviet or Arab response led to efforts to conceal Israel's nuclear weapons development.

The Israeli nuclear project was shrouded in secrecy. A full knowledge of the program was possessed by only a few key individuals in the Israeli government. Financing for the program came not only from official government sources, but also from sources outside official channels. Military involvement in the nuclear weapons program was limited.[32] Official Israeli nuclear policy is that Israel will not be the first country to introduce nuclear weapons into the Middle East. What exactly the Israelis mean by 'introduce' is, almost certainly intentionally, open to interpretation. Speculation ranges from the possibility that the Israelis consider nuclear weapons to have already been introduced into the region by the Soviet and U.S. navies, to the idea that introduction means public declaration, or the official interjection of nuclear weapons or nuclear threats

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[29] Cohen, "Cairo," 197.

[30] Ibid., 192.

[31] Aronson, *Politics and Strategy*, 123.

[32] Cohen, "Men and Ethos," 29-31.

into regional conflicts.[33] Security concerns led to the development of Israeli nuclear weapons, and also determined the opaque nature and nondeclaratory posture of the Israeli nuclear weapons program and policy.

D.   CONCLUSION

Israel developed a nuclear program due to its security concerns. Structural and political considerations motivated the development of an opaque program, and a nondeclaratory nuclear weapons policy. It is important to differentiate between the characteristics of the programs of a new nuclear weapon state. The factors of opacity, nondeclaratory status, and non-weaponized arsenals are conceptually distinct. My research shows that each has its own impact on preventive attack, preemptive attack, and the escalation of conventional war to nuclear war. Opacity creates uncertainty about the existence of nuclear weapons, decreasing the likelihood a nuclear weapons state will become the victim of preventive and preemptive attacks. A nondeclaratory status decreases military influence over and reliance on nuclear weapons, reducing the impact of organizational pathologies and acceptance of the legitimacy of the use of nuclear weapons. This affects the likelihood a nuclear weapons state will engage in preemptive strikes or escalate to nuclear war. Non-weaponization precludes the use of nuclear weapons for any purpose until they can be assembled.

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[33] Dowdy, p. 83, and George H. Quester, "Nuclear Weapons and Israel," *The Middle East Journal* 37, no. 4 (Autumn 1983), 553-554.

III. PREVENTIVE ATTACK

A.   INTRODUCTION

Preventive attacks are one of the three paths toward international instability I

explore. This chapter examines the impact of nuclear weapons on preventive attacks in

the Middle East. Several authors, such as Lavoy, cite the transition period during which a

state is developing nuclear weapons but does not yet have an operational nuclear

capability "as the most dangerous phase in the proliferation process."[34] Hypotheses

derived directly from proliferation optimism, which predicts aggressors are deterred by the

potential for future retaliation, requires access to the actual decision making process

involved in deliberations of actual preventive attacks, and are therefore difficult to test. A

less direct method of hypothesis testing is useful. The underlying assumptions of

proliferation optimism and pessimism fit neatly within Allison's models as described in the

introduction to this thesis. By building hypotheses within the framework of these models,

it is possible to test the arguments in the proliferation debate.

The hypothesis based on Allison's rational actor model has greater explanatory

power based on the case of the planned Egyptian attack on Dimona. In the case of the

Israeli preemptive attack on Iraq's Osiraq reactor, neither hypothesis receives definitive

support. Neither proliferation optimism nor pessimism is completely convincing in their

predictions regarding preventive attacks.

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[34] Lavoy, 719.

Although not carried out, the 1967 Egyptian plans to preventively attack Dimona illustrate what is perhaps the greatest danger nuclear weapons pose to strategic stability. Evidence presented below suggests that Israel already possessed nuclear weapons when the 1967 war started, or shortly after. If the Egyptians had carried out their plans, they would have attempted a preventive attack against a state already possessing nuclear weapons, risking an Israeli response with nuclear weapons.

This chapter consists of a brief review of the theory surrounding preventive war and the general theories of proliferation optimism and pessimism, followed by their specific arguments with respect to preventive attack. Hypotheses are derived with respect to Allison's Models, and then are examined within the context of conflict in the Middle East.

B.   PREVENTIVE WAR

According to Jack Levy, preventive war "generally refers to a war fought *now* in order to avoid the risks of war under worsening circumstances *later*."[35] The motivation for preventive war results "from the perception that one's military power and potential are declining relative to that of a rising adversary."[36] Several factors influence a state's expected-utility calculations regarding preventive war, and so the intensity of their motivation for preventive attack. These factors include: the extent of the relative gain of the adversary, the rate at which the adversary's power is increasing, geographical proximity, historical antagonism, ideological conflict, asymmetries of military instruments,

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[35] Jack S. Levy, "Declining Power and the Preventive Motivation for War," *World Politics* XL, no. 1 (October 1987), 82. (emphasis in original).

[36] Ibid., 87.

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the offensive-defensive balance of military technologies, intervention by third party states, military doctrines, misperceptions, domestic politics, and policy preferences.[37] For the purpose of this study preventive war can be narrowly defined as *attacks intended to destroy or delay a state's ability to produce nuclear weapons.*

Compared to conventional weapons, nuclear weapons have the potential to affect Levy's factors in a unique manner. With nuclear weapons, the gains in relative power come all at once at the end of the long process of nuclear weapons development, not increasing gradually over the course of an armament process as with conventional weapons. The relative gains of nuclear weapons are also very large in comparison to conventional weapons. The offense-defense balance shifts radically with the construction of nuclear weapons. Nuclear infrastructure is more susceptible to attack than are operational nuclear weapons, and the relative costs of failure are radically lower.

Proliferation optimists and pessimists ascribe predominance to different factors affecting decisions regarding preventive attacks. Proliferation optimism emphasizes the possible impact of uncertainty on the result of the rational actor's expected-utility calculation. Proliferation pessimism emphasizes the dangerous impact of policy preferences and military biases and doctrine.

C.   PROLIFERATION OPTIMISM AND PESSIMISM

The following section provides a brief overview of the two sides of the proliferation debate, then covers their specific arguments concerning preventive war. Waltz and Sagan crystallized the debate in their book, *The Spread of Nuclear Weapons.*

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[37] Ibid., 82-101.

Waltz argues that the proliferation of nuclear weapons might be beneficial because nuclear weapons enhance deterrence, thereby decreasing the probability of war. Deterrence is based on the threat of punishment. The massive destructive potential of nuclear weapons produces an almost unlimited capacity to punish.[38] Waltz's overall conclusion is that "the presence of nuclear weapons makes war less likely."[39]

Using organizational theory, Sagan argues that nuclear proliferation is bad. He presents two central arguments to disputes the assumption by proliferation optimism that states are unitary actors. First, the organizational behavior of professional militaries will lead to the use of nuclear weapons through failures in deterrence, manifested in deliberate or accidental war. Second, these failures will result from the lack of "positive mechanisms of civilian control" over the military in new nuclear states.[40] Sagan makes predictions concerning military attitudes toward preventive wars, the probability that military organizations will develop survivable nuclear forces, and the ability of civil authorities to control the military in times of conflict. He concludes:

> The actual behavior of new proliferators will be strongly influenced by military organizations within those states and that the common biases, rigid routines, and parochial interests of these military organizations will lead to deterrence failures and accidental uses of nuclear weapons despite national interests to the contrary.[41]

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[38] Sagan and Waltz, 7-8.

[39] Ibid., 33.

[40] Ibid., 48-49.

[41] Ibid., 86.

1. Optimism

Waltz argues that preventive attacks are unlikely for two reasons. First, the attacker cannot be sure that the target state does not already possess nuclear weapons, thus the attacker risks nuclear retaliation for what was intended to be a preventive strike. Second, it is extremely difficult to strike hard enough to completely destroy a state's nuclear capacity. The target state can resume its nuclear program, eventually necessitating another more difficult preventive strike or forcing the acceptance of the target's development of nuclear weapons.[42]

The results predicted by proliferation optimism assume a rational decision making process, which is closely related to Allison's Model I, the rational actor model. In Model I, a state is "conceived as a rational, unitary decision maker."[43] Rationality is defined as choosing the action which maximizes the value to the state, from among the options available, which are limited by existing constraints.[44] Under this model, proliferation optimist's would argue that the utility gained by preventive attacks is outweighed by the risk of nuclear retaliation, therefore states will not pursue preventive attacks.

2. Pessimism

Sagan argues that preventive attacks are likely to result from military biases toward preventive war. Jack Snyder indicates that militaries view war as inevitable, prefer military solutions, fail to consider non-military costs, and favor decisive offensive

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[42] Ibid., 17-19.

[43] Allison, 32.

[44] Ibid., 30.

operations.[45] These biases result in a strong military predisposition to preventive war.[46]

In states where civilian control of the military is not assured, Sagan believes preventive

wars are more likely.[47]

There is some weakness in Sagan's argument. Lavoy points out the fallacy of

extrapolation of U.S. military biases to other state's militaries.[48] Organizational theory

argues that the goals, strategies, tasks, environment, people, and technology of an

organization affect the organization's structure, preferences, performance, and

personnel.[49] The experience of a military with a greater influence in a state's foreign

policy and autonomy will produce differing perspectives, and potentially less of a bias

toward preventive war. Peter Feaver, a proliferation pessimist, recognizes that Sagan

overestimates the pressures for preventive war.[50]

Neglecting these problems, the pessimism argument can be expressed in terms of

Allison's Model II. Model II postulates that state behavior is best described "as outputs

of large organizations functioning according to standard patterns of behavior".[51]

According to this model, government bureaucracies offer decision makers limited

information and limited options. These organizations have parochial interests, and execute

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[45] Jack Snyder, *The Ideology of the Offensive: Military Decision Making and the Disasters of 1914*
(Ithaca: Cornell University Press, 1984), 18-19.

[46] Sagan and Waltz, 56-57.

[47] Ibid., 62.

[48] Lavoy, 720.

[49] Lee G. Boleman and Terrence E. Deal, *Reframing Organizations: Artistry, Choice, and Leadership*
(San Francisco: Jossey-Bass Publishers, 1991).

[50] Feaver, "Correspondence," 188.

[51] Allison, 67.

instructions imperfectly due to organizational constraints. A state's options and ability to act are therefore constrained by their organizations.[52] In the framework of Model II, proliferation pessimism argues that state action in relation to preventive war is determined by the organizational biases of the military.

3. Hypotheses

A hypothesis drawn from proliferation optimism is: If faced with an adversary who is developing nuclear weapons, states in the Middle East will refrain from preventive strikes due to fears of retaliation immediately or in the future. Testing of a hypothesis from this argument is difficult because the evidence to support the hypothesis would require an intimate knowledge of the thought process behind the decision not to undertake a preventive attack. This evidence does not exist in the public domain.

A less stringent hypothesis can be derived by applying Allison's Model I to decision making regarding preventive attacks. Optimism as seen through a Model I hypothesis is that states in the Middle East, if faced with an adversary who is developing nuclear weapons, will make their decision based on an evaluation of the costs and benefits of the attack. The same lack of evidence that plagues a direct hypothesis from optimism's argument prevents testing of the value-maximizing aspect of the Model I hypothesis. It is possible, however, to contrast Model I with Model II. To gain useful support for the Model I hypothesis, the evidence must show a decision *not* to undertake a preventive attack, since it is not possible to determine if rational decisions or organizational biases produced a decision to attack.

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[52] Ibid., 78-87.

A hypothesis drawn from proliferation pessimism is: If faced with an adversary who is developing nuclear weapons, states in the Middle East will execute preventive strikes due to military biases which favor such attacks. Pessimism as applied through Model II hypothesizes that if faced with an adversary who is developing nuclear weapons, states in the Middle East will make their decision whether or not to preventively attack based on organizational input from the military, which favors executing a strike. Both of these hypotheses are more difficult to demonstrate than the Model I hypothesis, since the evidence must indicate not only that a preventive strike occurred, but also that organizational influence led to the decision.

D.   EVIDENCE

In this section I examine two cases with relevance to the above mentioned hypotheses. The Egyptian plans to strike Dimona in 1967 and the Israeli attack on Osiraq are preventive attacks with bearing on both the Model I and II hypotheses and the proliferation arguments.

1.   The Egyptian Strike on Dimona

Early in 1967, tensions increased between Israel and the Arab states; Syria, Jordan, and Egypt. Syrian guerrilla attacks and Israeli retaliation became increasingly hostile.[53] On 7 April Syrian artillery shelling of Israel led to an air battle in which six Syrian aircraft were shot down. Egypt's President Abdul Nasser, goaded by Arab condemnation for his failure to act during this incident and by calls to support Egypt's obligations within a mutual defense pact with Syria. On 15 May Nasser reacted to Soviet reports of an Israeli

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[53] A. J. Barker, *Arab-Israeli Wars* (New York: Hippocrene Books, 1981), 41.

troop buildup on the Syrian border by moving Egyptian troops into Sinai. The reports

later proved to be false. Shortly thereafter, Nasser expelled UN observers from their posts

in the Sinai, which the UN had maintained following the 1956 Sinai-Suez war.[54]

On 22 May Israel responded with a limited mobilization. On the same day Nasser

closed the Straits of Tiran, an action which Israeli policy stated was sufficient provocation

for war. The Israeli Defense Forces launched a successful preemptive attack against

Egyptian air and ground forces on the morning of 5 June. The Egyptian Air Force was

largely destroyed.

Avner Cohen provides an in-depth discussion of the role of Israel's nuclear

program and the Dimona reactor in the 1967 Six Days War. According to Cohen, the

Arabs were well aware of the Dimona's potential as a source of material for Israeli nuclear

weapons development.[55] Based on his reading of President Nasser's diplomatic

interactions and public statements, Cohen concludes that the potential Israeli nuclear

capability was not a significant issue for Nasser in the crisis leading up to the war.

Dimona apparently was a concern for someone in the Egyptian military. Prior to Israel's

preemptive attack, Egyptian aircraft made reconnaissance flights over Dimona.[56] These

flights were considered a major provocation by Israel's leadership.

Statements made by Munya Mardor, the first director of Israel's Weapons

Development Authority, and others lead Cohen to conclude that Israel completed

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[54] Ibid., 43.

[55] Cohen, "Cairo," 192.

[56] Ibid., 201.

development of a limited operational nuclear weapons capability in June 1967.[57] During

the war, Israel captured Egyptian plans for an air strike on Dimona, indicating it was a

primary target.[58] While Cohen suggests the Egyptian plan might have been to attack

Dimona as a target of opportunity in the event of more widespread hostilities, he also cites

evidence that Egypt's Commander in Chief, Marshal 'Abd al-Hakim 'Amir, ordered the

attack on Dimona for 27 May as part of the initial hostilities, only to have Nasser veto the

order on 26 May. Cohen refers to the research of Ehud Ya'ari, which shows that senior

Egyptian military leaders blamed 'Amir for drawing Egypt into the 1967 war with Israel.

According to Egypt's Chief of Staff, General Muhammad Fawzi, Nasser was pursuing a

political victory, while 'Amir desired a military confrontation with Israel.[59]

There are two commonly expressed interpretations of these events. One view is

that Nasser never intended to go to war in 1967, he was merely pursuing political

objectives and misjudged the Israeli response.[60] A second possibility is that Nasser

intended to fight a war with Israel, but he misjudged the relative capabilities of the

conventional forces.[61] In this interpretation, Nasser believed the Egyptian armed forces

could absorb the initial Israeli blow, and still prevail. He rejected the military's plan to

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[57] Ibid., 208.

[58] Ibid., 201.

[59] Ibid., 192-203.

[60] This view is expressed by Cohen, "Cairo," 200, Trevor N. Dupuy, *Elusive Victory: The Arab-Israeli Wars, 1947-1974* (Fairfax Va.: Greenhill Books, 1984), 224, Aronson with Brosh, 114, and Reiter, 18.

[61] See Reiter, 18, and Janice G. Stein, "Calculation, Miscalculation, and Conventional Deterrence II: The View from Jerusalem," in *Psychology and Deterrence,* ed. Robert Jervis, Richard N. Lebow, and Janice G. Stein, (Baltimore: Johns Hopkins University Press, 1985), 81.

strike first because he valued the political advantage, being perceived by the international community to be the victim, more than the military advantage of striking first.[62]

Several conclusions can be inferred from this evidence. First, it appears that the military bias toward offensive operations, if not preventive war itself, existed in the Egyptian military prior to 1967. Second, the military was able to exercise sufficient autonomy to undertake provocative actions, in the form of reconnaissance flights over sensitive enemy targets, which complicated the political situation. Third, despite the military bias and complications, Nasser maintained ultimate control and decided against a preventive attack in favor of actions in pursuit of other goals.

2.   The Israeli Strike on the Osiraq Reactor

Jed Snyder offers a detailed discussion of the relative transparency of Iraqi efforts to procure the capability to build nuclear weapons prior to 1981.[63] The Iraqi intent was readily evident. Israel attacked the Osiraq nuclear reactor in Iraq on 7 June 1981. The attack was intended to delay or destroy the Iraqi ability to produce nuclear weapons.

Amos Perlmutter maintains that the raid on Osiraq was largely the result of the personal efforts of Begin.[64] Prior to Begin's election, the Labor government's policy toward the Iraqi nuclear program had been non-confrontational. This changed radically when Begin was elected. He saw the Iraqi possession of nuclear weapons as analogous to the Holocaust, and led the effort to build a consensus within the Israeli cabinet to pursue a

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[62] Cohen, "Cairo," 206, and Barker, 46.

[63] Jed C. Snyder, "The Road to Osiraq: Baghdad's Quest for the Bomb," *The Middle East Journal* 37, no. 4 (Autumn 1983).

[64] Amos Perlmutter, *The Life and Times of Menachem Begin* (Garden City, NY: Doubleday, 1987).

preventive strike to destroy the Osiraq reactor.[65] There was a contentious debate over the raid. Begin was supported by most of the top military leadership, including Defense Minister Ariel Sharon and Israeli Defense Force Chief of Staff Rafael Eitan.[66] Some in the military and intelligence community were opposed, including Mossad Director Yitzhak Hofi and the Chief of Military Intelligence, Major General Yehoshua Saguy.[67] Those opposed to the raid feared that Iraqi could build nuclear weapons even if the reactor complex was destroyed, and believed the political costs of such aggressive action would be excessive.[68] It was Begin who made the raid happen, in part because he feared the opportunity to act would be lost if the Labor party won the upcoming elections.[69]

E. CONCLUSION

The Model I hypothesis gains the most support from the evidence of these two cases. There is also some evidence in each case to indicate that both the proliferation optimism and proliferation pessimism arguments are valid.

The case of the planned preventive raid on Dimona tends to support the Model I hypothesis. There is also some support for the underlying arguments made by Sagan. The Arabs recognized the potential that Israel was developing nuclear weapons. The Egyptian military planned to strike the Dimona reactor, indicating a bias toward preventive attacks.

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[65] Ibid., 362.

[66] Ibid..

[67] Hersh, 9.

[68] Perlmutter, 363, and Hersh, 10.

[69] Perlmutter, 365, and Sasson Sofer, *Begin: An Anatomy of Leadership* (New York: Basil Blackwell, 1988), 230.

This lends credence to the assertion regarding the biases of military organizations. Nasser did not order the attack, possibly in deference to other interests which he valued more highly than attacking Dimona. This is evidence that the preventive strike was not perceived as producing the maximum utility of the available options. The Model I hypothesis gains the most support from this evidence.

The case of the Osiraq raid is less definitive. The Israeli's knew Iraqi was attempting to develop nuclear weapons. The fact that the Israelis executed the raid does not lead to an unequivocal conclusion. The evidence indicates that the military did have some role in the decision to carry out the attack, however, the fact that the previous Labor government did not order the attack suggests that military support might be a necessary, but is not a sufficient condition for prevention. While not supporting Sagan's argument directly, the involvement of Begin suggests that not all biases toward preventive attacks come from the military. The effect is the same. Ultimately, the evidence does not support a conclusion regarding whether utility maximization or biases produced the Israeli decision. Neither hypothesis can claim more support from this case.

Several other lessons are implied by the empirical evidence. The 1967 war is indicative of the potential dangers and benefits of opaque proliferation with respect to preventive attacks. There is evidence Israel already had nuclear weapons while the Egyptians were planning an attack against the Dimona reactor.[70] The Israel response to such an attack might have been costly to Egypt. This is the core of the first argument made by Waltz concerning why preventive attacks should not happen, however, the reality

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[70] Cohen, "Men and Ethos," 208.

of the situation does not necessarily prevent its occurrence. On the other hand, the opacity of the Israeli nuclear program produced significantly less motivation for a preventive attack in 1967 than did the relative transparency of the Iraqi nuclear program in 1981. Opaque proliferation decreases the pressure for preventive attack, but increases the risk of miscalculation. States are less likely to preventively strike opaque, well concealed nuclear weapons development programs.

Several of the factors Levy cites as increasing preventive motivation are seen in these cases. Egypt felt that its relative conventional military power conventionally was increasing, and did not prevent, while Israel felt its relative power would decline with regards to nuclear weapons and did strike. The likelihood of third party intervention was higher in the Dimona case, due to the overall context of the conflict, while in the Osiraq case the raid was over before any third party intervention could occur.

IV. PREEMPTIVE ATTACK

A.   INTRODUCTION

Preemptive attacks are the second of the three paths toward international instability which I explore. The Cold War brought preemptive attacks to center stage as "the most likely path to armed conflict."[71] This concern continues today, especially in relation to nuclear proliferation.[72]

The arguments of proliferation optimism and pessimism are based on assumptions about the impact of nuclear weapons on the relative advantages of offensive and defensive military operations. The security dilemma and offense-defense balance theory describe the relationship of relative advantages to preemptive attacks. Proliferation optimism predicts that nuclear weapons possess a defensive advantage, therefore preemptive attacks against them are unlikely. Proliferation pessimism predicts an offensive advantage results from the inability of states to produce survivable second strike nuclear forces, therefore preemptive strikes against nuclear weapons are likely.

The evidence from the 1967 and 1973 Arab-Israeli wars shows that vulnerability and perceived offensive advantage does not necessarily lead to preemptive attacks. Interpretation of Egyptian actions in 1973 supports the conclusion that uncertainty about the nuclear capabilities of Israel produced the perception of a defensive advantage, which prevented strategic preemptive strikes.

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[71] Reiter, 5.

[72] Lavoy, 725.

In this chapter I briefly examine the security dilemma and offense-defense theory, which are commonly used to explain preemption, then express the arguments of proliferation optimism and pessimism in these terms. The impact of opacity on the arguments of proliferation optimism and pessimism is included. Hypotheses are derived from the arguments, then an overview of the Arab-Israel wars in 1967 and 1973 provides the empirical data with which to test the hypotheses.

B.   PREEMPTIVE WAR

Jack Snyder describes preemptive attack as an operation which "forestalls the mobilization and deployment of existing forces"[73] Dan Reiter describes preemption as "war in which one side attacks to forestall what it sees as an impending attack on itself."[74] "A war is preemptive if it breaks out primarily because the attacker feels that it will itself be the target of a military attack in the short term."[75] Peter Lavoy refines the definition with respect to nuclear proliferation, stating that "preemptive attack is designed to destroy existing nuclear forces before they can be used in war."[76]

The security dilemma and offense-defense balance theory provide an explanation for the origin of preemptive war. The security dilemma was also described by Robert Jervis as the spiral model, which demonstrates how two security seeking states can become involved in a conflict despite the appearance that it is in both their best interests to

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[73] Jack Snyder, "Perceptions of the Security Dilemma in 1914," in *Psychology and Deterrence,* ed. Robert Jervis, Richard N. Lebow, and Janice G. Stein, (Baltimore: Johns Hopkins University Press, 1985), 160.

[74] Reiter, 5.

[75] Ibid., 6.

[76] Lavoy, 725.

cooperate.[77] The security dilemma and the spiral model are so conceptually similar, that I do not distinguish between them.

Because states exist in an anarchic environment, and the good will of one state toward another cannot be guaranteed in the future, the efforts of one state to enhance its security have the potential to threaten the security of other states.[78] Jervis explains that "psychological dynamics" are the cause of a reinforcing cycle of hostility and fear. Seeking its own security, a state builds its military forces, assuming its adversary understands the state's security motivation. The adversary is unable to count on the continued good will of the state, perceives the state's military build up to be a potential threat, and responds with a build up of its own. Since its adversary 'knows' it is not a threat, the state determines its adversary's build up is indicative of some aggressive intent, and counters with further attempts to increase its security.[79] These cycles lead states to the conclusion that war is inevitable and an advantage can gained by striking first.[80]

Jervis contends that two factors affect the intensity of the security dilemma, "whether defensive weapons and policies can be distinguished from offensive ones, and whether the defense or the offense has the advantage."[81] Offense-defense balance theory holds that a military advantage exists for either offensive or defensive operations, which

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[77] Robert Jervis, *Perceptions and Misperception in International Politics* (Princeton: Princeton University Press, 1976), 63.

[78] Ibid., 62-64.

[79] Ibid., 67-76.

[80] Reiter, 8-9.

[81] Robert Jervis, "Cooperation under the Security Dilemma," *World Politics* 30, no. 1 (January 1978), 186.

periodically shifts from one operation to the other.[82] The character of international

relations is affected by the actual or perceived relative advantage. If the offense has the

advantage, it is easier and cheaper to attack than to defend. Sean Lynn-Jones explains that

"international politics will become more competitive and less peaceful when the offense-

defense balance shifts toward the offense."[83] Reiter states that when there is an offensive

advantage:

> Preemptive wars become more likely, both because states fear that an adversary's
> attack in a crisis is more likely, hence are more motivated to preempt, and because
> actually executing the preemption looks more attractive because of the military
> advantage of striking first.[84]

Jervis explains the impact of the ability to differentiate between offensive and defensive

forces on the security dilemma.[85] Assuming both states are only pursuing their own

security, the ability to differentiate forces has little short term influence on preemptive war.

This is because the defense has the advantage and the contending states can tell the other

is building defensive forces, the security dilemma does not exist and no preemptive attack

should occur.[86] If the defense has the advantage, but the nature of the forces cannot be

differentiated, the states should build defensive forces, thinking the adversary will attack,

then face off, waiting for their opponent to attack so as to enjoy the defensive advantage.

The ability to differentiate defensive forces has no real impact on the likelihood of

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[82] Sean M. Lynn-Jones, "Offense-Defense Theory and Its Critics," *Security Studies* 4, no. 4 (Summer 1995), 670.

[83] Ibid..

[84] Reiter, 9.

[85] Jervis, "Cooperation," 199-201.

[86] Charles L. Glaser, "The Security Dilemma Revisited," *World Politics* 50 (October 1997), 186.

preemptive attack. Likewise, an offensive advantage makes preemptive attacks likely, regardless of ability to determine the nature of the forces. According to the security dilemma and offense-defense theory, the road to preemption is the existence or perception of an offensive advantage.

Offense-defense balance arguments can be applied to nuclear weapons. In one sense, nuclear weapons could produce a significant offensive advantage, especially when a nuclear weapons state faces a non-nuclear adversary. This advantage for new nuclear weapons states must be weighed against the costs, military and otherwise, of using nuclear weapons offensively. Such a use would be strongly opposed as a violation of international norms, most likely leading to sanctions or the intervention of the international community. Israel's dependence on the United States for military and economic support, combined with U.S. attitudes toward nuclear proliferation, make it likely that the offensive advantage gained by the offensive use of nuclear weapons could not overcome the costs imposed.

Against another nuclear weapons state, the advantage of offensive use of nuclear weapons is even more uncertain. In addition to the costs described above, potential retaliation in kind would more than cancel any advantage generated by the first of nuclear weapons. Without specifically stating their intention to do so, proliferation optimists and pessimists predicate their arguments around offense-defense balance theory.

C.   PROLIFERATION OPTIMISM AND PESSIMISM

This section examines the arguments of proliferation optimism and pessimism and relates those arguments to the concepts of offense-defense balance theory. The impact of

opacity on the optimistic and pessimistic arguments is discussed, then hypotheses are derived.

1. Optimism

Waltz argues that preemptive attacks on nuclear forces are unlikely due to inability to guarantee the complete success of an attack, and the potential of horrific results if even a small part of the attack fails. Waltz maintains that new nuclear states find it is easy to create secure second strike nuclear forces, an attacker will be unable to ensure the destruction of all of their opponents nuclear weapons, and the massive destructive power of nuclear weapons allow even a small number of surviving weapons to deter a potential attacker.[87] The threat of nuclear retaliation is so onerous that the deterrent effect is produced even the in face of significant uncertainty regarding an adversaries possession of nuclear weapons.[88]

The ability of nuclear weapons to endure an effective attack and still produce unacceptable levels of retaliatory destruction produces a significant defensive advantage for these weapons, hence there is little or no military advantage to striking first. Preemptive attacks are unlikely in the absence of a perceived military advantage to striking first.

2. Pessimism

Sagan argues that preemptive attacks result from organizational failure to effectively create survivable forces. He contends that military organizations fail to allocate

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[87] Sagan and Waltz, 19.

[88] Ibid., 110-111.

funds for survivability, view survivability as unnecessary due to an emphasis on offensive operations, create vulnerabilities through inappropriate organizational operating procedures and routines, and emphasize traditional missions at the expense of nuclear forces.[89]

In offense-defense balance terms organizational failures produce vulnerabilities, which translate into an offensive advantage. This in turn motivates preemptive attacks. The implicit assumption is that offensive advantage alone has sufficient influence to produce preemptive attacks. Pessimism predicts that an organizational failure to build survivable second strike nuclear forces produce a military advantage to striking first, leading to preemptive strikes.

3.   Opacity

The following paragraph discusses three ways in which the pessimistic argument is affected by opacity and a nondeclaratory nuclear weapons policy. First, opaque proliferators tend to insulate nuclear organizations from their military. Second, the military in a nondeclared nuclear weapons state is unlikely to depend on nuclear weapons, therefore military officers are unlikely to view them as offensive. Third, protection from disclosure is a primary concern of opaque proliferators, which has side benefits for survivability.

There is a tendency for opaque nuclear programs to be administered outside normal military channels.[90] This was true of both the Indian and the Israeli programs. The

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[89] Ibid., 67-68.

[90] Frankel, 22.

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budget for the Israeli nuclear program came partially from the defense budget, but fiscal decisions regarding funding of the nuclear program were not made by the conventional military bureaucracy. The nuclear program in India operates completely outside the military bureaucracy.[91] To the extent that this trend holds true, nondeclared nuclear weapon states are be less subject to Sagan's first concern.

Sagan's second concern is influenced in two ways by the declaratory status and/or opacity of a nuclear weapons program. First, whatever incentive motivates the state to maintain a nondeclaratory policy provides a disincentive for an offensive nuclear doctrine, thereby invalidating the idea that the weapons must be used before being attacked. If the weapons are not to be used prior to being attacked, military organizations have incentive to make nuclear weapons survivable.

Second, although the exact nature of the organizations handling the nuclear weapons in the de facto nuclear weapons states is not known, given that the state's policy is one of denying possession of nuclear weapons, it can be assumed that a primary mandate of any organization exercising control over nuclear weapons would be to protect those assets from discovery. These organizations would not consider secrecy, and by association, survivability, to be unnecessary. This also addresses the third pessimism concern. In a relative sense, these organizations would guard more closely against failures of routine and procedures. Nondeclared status would not preclude such failures, only make them less likely. Nondeclared status and opacity dictate the maintenance of the

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[91] For the Israeli case see Cohen, "Men and Ethos," 31, for Indian case see; B. Chellaney, "India," in *Nuclear Proliferation after the Cold War,* ed. Mitchell Reiss and Robert S. Litwak, (Washington DC: Woodrow Wilson Press, 1994), 167-168.

security of nuclear weapons, thus promoting the survivability of nuclear forces. Relative to openly, acknowledged nuclear weapons, this decreases the vulnerability of opaque and nondeclared nuclear forces. This decreases the offensive advantage, reducing the likelihood of preemptive attacks.

4. Hypotheses

Offense-defense balance theory leads to the following two hypotheses with respect to the nuclear proliferation debate. First, proliferation optimism hypothesizes that if the Arab states suspect Israel has nuclear weapons, they will perceive a defensive advantage and not preempt. Second, if the Arabs or the Israelis believe there is an advantage in offensive operations, they will preempt, whether or not nuclear weapons are involved. Proliferation pessimism predicts that organizational failures within the military of one state produce vulnerabilities which lead the opposing state to believe there is an advantage to striking first.

Several issues should be highlighted to avoid confusion regarding the conclusions that can be drawn from the available empirical evidence. The first hypothesis is testable with evidence from the Middle East because it requires a less difficult demonstration regarding Arab opinion on whether or not Israel possessed nuclear weapons. Since proliferation optimism maintains uncertainty can deter, the hypothesis can be tested against a mere doubt about the existence of Israeli nuclear weapons. Likewise, for both hypotheses, the absolute existence of an offensive or defensive advantage is not required, only the demonstration of the *perception* of such an advantage.[92]

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[92] William C. Wohlforth, "The Perception of Power: Russia in the Pre-1914 Balance," *World Politics* 39, no. 3 (April 1987).

Finally, with the second hypothesis, it would be a mistake to extrapolate behavior in non-nuclear situations to nuclear situations. The failure of preemptive strikes against non-nuclear targets is not nearly as costly as failure against nuclear targets. Preemption in non-nuclear situations is not necessarily applicable to nuclear situation. The converse is not true. If preemption is foregone in the non-nuclear case, this evidence has greater predictive value for the nuclear case because the factors which determined a negative decision to preempt in a non-nuclear case are just as likely, if not more so, to produce a negative decision in the nuclear case.

D.   EVIDENCE

Three specific tests can be applied to the hypotheses. The optimistic hypothesis can be tested against evidence of Egyptian beliefs and actions in the 1973 Arab-Israeli war. The pessimistic hypothesis can be tested against evidence of Israel preemptive decisions in both 1967 and 1973.

1.   Egypt in 1973

For the optimistic hypothesis to be supported, there must be evidence that the Egyptians were uncertain about whether or not Israel possessed nuclear weapons in 1973 and evidence that they did not preemptively strike Israeli strategic targets. The evidence that Egypt suspected Israel had nuclear weapons, or at least hedged against an Israeli nuclear threat, is inferential in nature and subject to debate.

Two issues impact my conclusion. First, Egypt's leadership was prevented by domestic and regional politics from admitting they believed Israel had nuclear weapons,

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and therefore, second, their actions must be used to determine the true nature of their beliefs.

When Nasser died in 1970, Anwar Sadat took power with Egypt in poor financial condition. The country had been defeated and partially occupied by Israel in 1967. Egypt was indebted to, and dependent on, the USSR for military equipment. The nation was permeated with domestic discontent due to the lack of a resolution to the Israeli occupation of the Sinai.[93] In 1973, Sadat's power was not yet consolidated. Domestic concerns and Pan-Arabic politics precluded any demonstration of weakness by Sadat with respect to Israel. An admission that Israel possessed nuclear weapons would have placed Egypt in a more inferior position to Israel than Egypt's defeat in 1967. Sadat's regime would have been hard pressed to survive such a disclosure.[94] In this environment, it is unlikely Sadat would admit knowledge of Israeli possession of nuclear weapons, even if he had irrefutable evidence.

In 1976, Sadat acknowledged that he believed Israel had the capacity to build nuclear weapons, but believed it had not done so.[95] In 1980, Egypt's Minister of Foreign Affairs, Kamal Hasan Ali, revealed that Egyptians knew that Israel had had the capacity to build nuclear weapons since the 1960s.[96] When the Egyptians determined this is unknown, but they knew of the existence of the Dimona reactor in the early 1960s.[97] If

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[93] Howard M. Sachar, *Egypt and Israel* (New York: Richard Marek Publishers, 1981), 168-186.

[94] Thomas L. Friedman, *From Beirut to Jerusalem* (New York: Anchor Books, 1995), 89.

[95] Shai Feldman, *Israeli Nuclear Deterrence* (New York: Columbia University Press, 1982), 11.

[96] Ibid., 12.

[97] Cohen, "Cairo," 192.

the Egyptians knew of the Israeli capability to produce nuclear weapons, would they assume with total assurance that the Israelis would refrain from doing so during a war? Such an assumption is improbable due to the incalculable risk if it proved to be incorrect.

There is evidence that in 1973 the Israeli ability to damage Egyptian strategic targets, either through conventional or unconventional means, was considered by the Egyptian leadership, who attempted to limit Israeli strategic attacks on Egypt by refraining from strategic attacks on Israel. After the war, Sadat made some cryptic remarks concerning his possession of a "retaliation weapon," and his ability to strike at the heart of Israel during the 1973 war.[98] In the beginning hours of the 1973 war, Egyptian aircraft fired a Kelt missile at Tel Aviv.[99] The launch profile of the missile allowed Israeli aircraft the intercept it while it was still off the coast, well before it could threaten the city.[100] Sholomo Aronson maintains that these attacks were intended to establish a tacit bargain between Egypt and Israel not to attack civilian targets.[101] The missile launch was a singular event, giving an indication of Egypt's capacity to carry out strategic attacks with the missile launch and restraint by the harmless methodology and lack of repetition.

Just prior to the 22 October cease-fire, Egypt launched two SCUD missiles into positions occupied by the Israeli Army. In both cases, the damage done was minuscule,

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[98] Anwar el-Sadat, *In Search of Identity* (New York: Harper and Row Publishers, 1977), 225& 293.

[99] Yaacov Bar-Siman-Tov, "Constraints and Limitations in Limited War: The Case of the Yom Kipper War," *The Jerusalem Journal of International Relations* 5, no. 2 (1981), 57.

[100] Shlomo Aronson, "The Nuclear Dimension of the Arab-Israeli Conflict: The Case of the Yom Kippur War," *The Journal of International Relations* 7, nos. 1-2 (1984), 119.

[101] Ibid., 119 & 129.

with few casualties. The SCUD missile launches had deterrent characteristics. Sadat wrote that the SCUD missiles were launched as a demonstration of the fact that he possessed, and would use, "such a weapon."[102] SCUD missiles are largely inaccurate, and have little utility unless they carry a warhead which does not require a highly precise delivery, such as a nuclear or chemical one.[103] The Egyptians possessed chemical weapons before the 1973 war, and provided them to the Syrians.[104] Since these weapons were not used tactically during the war, they must have been intended for some other purpose. The SCUD attacks can be interpreted as a demonstration of Egypt's capacity to strike Israel strategic targets, potentially with weapons of mass destruction, in order to deter Israeli use of nuclear weapons.

The academic debate about the impact of a nuclear capability in the 1973 Arab-Israeli war is unresolved. Aronson presents evidence which supports the conclusion that concerns over the Israeli nuclear potential were central to Arab strategy. His analysis indicates Egypt and Syria both limited their military objectives and actions in order to preclude escalation of the conflict and an Israeli nuclear response.[105]

Yair Evron disagrees with the conclusion that nuclear concerns effected Arab military planning or execution of the 1973 war. He concludes that fear of Israeli conventional military capabilities explains self-imposed limitations of Egyptian war aims

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[102] el-Sadat, 265.

[103] Wynfred Joshua, "The Middle East in Soviet Strategy," *Strategic Review* (Spring 1974), 66.

[104] Louis R. Beres, "Israeli Security in A Changing World," *Strategic Review* (Fall 1990), 12.

[105] Aronson, *Politics and Strategy,* 139-146.

and methods employed.[106] If Evron is correct, the case is of less utility in explaining the impact of nuclear weapons, however, extrapolation to the nuclear case is possible. Two assumptions are required. First that nuclear weapons are more capable of producing the damage which dissuaded the Egyptians from engaging in strategic attacks than conventional weapons. Second, that nuclear weapons are just as difficult to target and destroy as conventional forces. If these two assumptions are accepted, then existence of Israeli possession of nuclear weapons in 1973 would produce the same effect that Evron attributes to conventional forces.

I infer from the evidence that Sadat was unsure whether or not Israel had nuclear weapons. The SCUD and Kelt missile launches were a demonstration of Egyptian capability to strike strategic targets in Israel, which highlighted the fact that they had not done so. Sadat was unwilling to risk Israeli retaliation, therefore made sure the Israelis were aware of his own restraint. While certainly not incontrovertible, this interpretation evidence points to Egyptian restraint from preemptive attacks on strategic Israeli targets, stemming from the desire not to be subject to retaliation. This fear of retaliation points to the perceived inability to prevent it, and therefore the belief in a the ability of Israel to defend its strategic forces.

2.   Israel in 1967 and 1973

Empirical support for the pessimistic hypothesis requires evidence of a belief that offensive operations have a relative advantage over defensive operations, and of

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[106] Yair Evron, "The Relevance and Irrelevance of Nuclear Options in Conventional Wars: The 1973 October War," *The Jerusalem Journal of International Relations* 7, nos. 1-2 (1984), 143-172, and Yair Evron, *Israel's Nuclear Dilemma* (Ithaca: Cornell University Press, 1994), 72.

preemptive strikes executed to make use of that advantage. My analysis focuses on Israel, since it maintained an offensive military doctrine across both the 1967 and 1973 wars, and so should be an easy test for the hypothesis.

a.   Israeli military doctrine

Israeli military doctrine places reliance on offensive operations. Wartime damage to the small Israeli state could easily destroy it. This necessitates that enemies be fought outside of Israeli territory. The Israeli Defense Force and the Israeli economy are dependent on the same manpower, which serves as both industrial workers and as the reserve soldiers who make up the bulk of the Israeli armed forces. Wars have to be decided quickly following mobilization of the reserves to prevent crippling the Israeli economy. These two constraints lead to an offensive military doctrine. Various authors recognize this, stating: "The strategy evolved by the General Staff depended wholly on offensive action outside (Israel's) borders,"[107] "The Israeli military (has) been infused with belief in the importance of achieving tactical and strategic surprise,"[108] and "Preemption (was) desirable, if not vital."[109] In both the 1967 and 1973 wars, the Israeli military perceived an offensive advantage, which the pessimistic hypothesis indicates should produce preemptive attacks.

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[107] Barker, 47.

[108] Reiter, 17.

[109] Anthony H. Cordesman, *The Arab-Israeli Military Balance and the Art of Operations* (Washington DC: University Press of America, 1987), 13.

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b.   The Six Day War

Recall the discussion of the crisis leading up the Six Day War included in the previous chapter. Following Nasser's closure of the straits of Tiran on 23 May the Israeli Defense Forces, led by General Yitzhak Rabin, urged that immediate military action be taken. The Knesset, giving due consideration to U.S. President Lyndon Johnson's calls for restraint, did not authorize a preemptive attack.[110] At the end of May, as diplomatic options were exhausted, U.S. pressure on Israel not to take military action relaxed.[111] Israel delayed attacking Egypt until it believed such an attack would not jeopardize its relationship with the United States.[112]

When it was finally authorized to act, the Israeli Defense Force launched a successful preemptive attack against Egyptian air and ground forces on the morning of 5 June. The air attack was contingent on a daily operating routine established by the Egyptian Air Force. The Israeli Air Force had a habit of performing daily flights over the Mediterranean at dawn. The Israeli aircraft would fly at high altitude out over the water then drop to low altitude on their return to Israel. The Egyptian Air Force responded by establishing a dawn alert and air patrol which ended when the Israeli aircraft turned back toward their home bases. On 5 June the Israel aircraft dropped to low altitude, below Egyptian radar coverage, but instead of going back to Israel flew on to Egypt.[113] Following their established procedures, the Egyptian Air Force and air defenses had ended

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[110] Barker, 44.

[111] Reiter, 19.

[112] Ibid., 18-19.

[113] Dupuy, 245-247.

their alert and were caught off guard. The Israelis attack destroyed the majority of the

Egyptian air force on the ground, aided by the fact that the aircraft were not dispersed or

camouflaged despite the crisis atmosphere.[114]

Despite a reasonable plan for the defense of the Sinai, the Egyptian army

faced severe problems. The soldiers were poorly trained and led. There was confusion

regarding the plan, which was exacerbated by conflicting orders issued immediately prior

to Israel's attack.[115] The shock of the attack paralyzed the Egyptian command and control

system. Without coordination, Egyptian army units were unable to operate cohesively.

The Israel victory over the Egyptian forces occurred rapidly, with the battle for the Sinai

being largely over by midday on 9 June.[116]

c.   The 1973 Arab-Israeli War

On 6 October 1973 Egyptian and Syrian forces conducted simultaneous

attacks across the Suez canal and into the Golan Heights. Because of a failure of its

intelligence service, the Israeli government had little definitive warning of the attack.[117]

Egypt and Syria engaged in an extensive campaign of deception prior to the war. They

both masked their pre-attack troop concentrations by conducting the force mobilization at

the same time as recurring training exercises. Arab deceptions included planted news

stories regarding the poor condition of Egyptian military equipment, the evacuation of

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[114] Barker, 55.

[115] Dupuy, 240-242.

[116] Ibid., 265-279.

[117] Uri Bar-Joseph, "Israel's Intelligence Failure of 1973: New Evidence, a New Interpretation, and Theoretical Implications," *Security Studies* 4, no. 3 (1995).

Soviet advisors and citizens, and the withholding of the date and time for the attack from their own forces until the last minute.[118]

The Israeli government knew of the massing of Arab troops near the Suez canal and on the Syrian border and on 3 and 4 October had responded by placing the Israeli Defense Forces on a heightened state of alert and forward deploying some troops.[119] On 5 October the Israeli government learned of the evacuation of the Soviet advisors and citizens and placed the Israeli Defense Forces on full alert. Until 6 October, the official Israeli intelligence assessment remained that there would be no war. The top Israeli government officials did not get a definitive warning of the impending attack until ten hours before the war started.[120]

When the warning came, Israeli Military Chief of Staff General David Elazar "urged an immediate preemptive air attack against Syria."[121] Israeli Prime Minister Golda Meir refused to accept Elazar's suggestion due to political considerations. The U.S. State Department had advised the Israeli government that if Israel started a war, the United States would not re-supply it with military equipment.[122] The Israeli Cabinet also refused to allow other potentially provocative steps to be taken in preparation for the

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[118] Dupuy, 391-393.

[119] Ibid., 406.

[120] Ibid., 406-408.

[121] Ibid., 408.

[122] Ibid., 408.

coming conflict, including the full mobilization of the Israeli Defense Force, or the forward

positioning of additional troops on the Suez canal.[123]

Despite the decision not to preempt, the Israeli Defense Force continued to

perceive an advantage to offensive operations. This emphasis on the offense is easily seen

in Israeli counter-attacks in the Sinai. During the initial Egyptian assault, Israeli armored

forces made repeated assaults on the Egyptian bridgeheads dispute heavy losses and

virtually no success. This was followed by another counter-attack by General "Bren"

Adan's division on 8 October. The division was not fully deployed, yet was committed

piecemeal to an offensive against an Egyptian force occupying prepared defensive

positions. Adan's attack was repulsed by the Egyptians with heavy Israeli losses. Only

after his forces were depleted was Adan inclined to assume a defensive posture. Despite

his division's reduced numbers, Adan's troops were able to withstand a determined

Egyptian counter-attack.[124] Israel maintained an offensive orientation during the 1973

war, however, it did not preemptively attack due to political considerations.

E.   CONCLUSION

Egypt's apparent uncertainty regarding Israeli nuclear capabilities, and their

subsequent restraint from attacking strategic targets in Israel tends to support the

hypothesis that the concerns about nuclear weapons reduce the likelihood of preemptive

strikes. The empirical evidence supporting the optimistic hypothesis is inferential, and

therefore subject to debate. If, as some analysis indicates, Egyptian restraint was due to

fear of conventional strategic threats, the evidence still supports the offense-defense

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[123] Ibid., 408-409.

[124] Ibid., 426-433.

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theory assumptions upon which the hypothesis is based. Israeli conventional capabilities are both easier to attack and less destructive than Israeli nuclear capabilities. If conventional strategic forces, which should be easier to preempt, possess a sufficient defensive advantage to dissuade strategic attacks, nuclear weapons should be even more capable of producing the same effect.

The implications of the evidence for the pessimistic hypothesis are ambiguous. Israel maintained the perception of an offensive advantage in both 1967 and 1973. In 1967 it preempted, in 1973 it did not. This points to factors exerting influence on the decision to preempt other than an offensive advantage.

Israel's success at preemptively attacking the Egyptian Air Force supports Sagan's assertion that military organizations fail when attempting to create survivable forces. While the preemptive Israeli attack was successful, the lack of nuclear weapons makes this only a partial validation of the pessimistic hypothesis. During the Israeli attack eight Egyptian aircraft managed to take-off. Two were successful in shooting down Israel jets.[125] The 1967 Israeli attack on Egypt is arguable one of the most completely successful preemptive attacks ever carried out. One wonders if it would be considered equally successful today if the attack was aimed at Egyptian nuclear forces, if the eight Egyptian aircraft were armed with nuclear weapons, and if *only* two nuclear weapons were successfully employed? Nuclear weapons fundamentally change the definition of success in preemptive attacks.

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[125] Barker, 55.

V. ESCALATION OF CONVENTIONAL CONFLICT TO NUCLEAR WAR

A.   INTRODUCTION

This chapter addresses the impact of nuclear weapons on the escalation of conventional war to nuclear war. Escalation is perhaps the gravest concern for the international community given the grave implications of a regional nuclear conflict and its potential to spread. Unfortunately, the extent and nature of the empirical evidence available with respect to escalation to a nuclear war is too limited to adequately test hypotheses. In lieu of theory testing, I examine the arguments of proliferation optimism and pessimism in a larger context of theories explaining the causes of escalation, present some empirical evidence which is indicative of the explanatory value of the arguments, and suggest directions in which the debate might be expanded.

Current academic discussions posit four causes for escalation: the security dilemma, the nature of war, military organizational pathologies, and military culture.[126] These theories provide a larger backdrop for the nuclear proliferation debate. The worthwhile arguments of proliferation optimism and pessimism focus on one route to escalation, the unauthorized use of nuclear weapons, which is a sub-argument of the military organizational pathologies path to escalation.

Waltz argues that nuclear deterrence makes conventional wars unlikely. This assertion must be dismissed in the face of significant evidence to the contrary. There is

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[126] See Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca: Cornell University Press, 1991), 12-16, and Jeffery W. Legro, "Military Culture and Inadvertent Escalation in World War II," *International Security* 18, no. 4 (Spring 1994), 109.

evidence which indicates that nuclear weapons prevent direct threats to the survival of states possessing them. Given that conventional wars have occurred and will again, the question becomes; how likely is conventional war to escalate to nuclear war?

Sagan's main worry is that inadvertent escalation will occur. Sagan and Peter Feaver argue that new nuclear states will suffer from command and control problems which increase the likelihood of escalation. Jordon Seng argues that the factors which the pessimists claim make new nuclear powers more susceptible to the unauthorized use of nuclear weapons actually aid these states in preventing such use.

There is very little concrete evidence available upon which to base a conclusion regarding which argument is more valid. The two pieces of evidence can be interpreted as support for the optimist argument. First, Israel's opaque posture indicates that their nuclear program follows a concealment strategy, alleviating the need for high states of readiness and reducing the likelihood of inadvertent use. Second, the lack of an Israeli nuclear response to Syrian FROG rocket attacks during the 1973 war indicates that if it had nuclear forces, they were not in a hair trigger, launch-on-warning posture. Evidence supporting the pessimist's argument is inconclusive, ambiguous, or non-existent. This is not necessarily an indictment of their argument, but reflects the nature of the evidence needed to support it. Other routes to escalation might be impacted by nuclear weapons and should be explored.

This chapter briefly reviews the four paths to escalation and command and control terminology. An examination of the arguments of proliferation optimism and pessimism is then viewed with respect to the available evidence from the Middle East.

B.   ESCALATION

Herman Kahn defines "escalation" as "an increase in the level of conflict in international crisis situations."[127] Escalation can involve either an increase in the intensity of conflict, an expansion of the area contested, or both.[128] Nuclear escalation would certainly be an increase in intensity, and could also expand the area of conflict.

Somewhat obviously, escalation can be either intentional or unintentional.[129] Kahn gives two reasons for intentional escalation: an attempt to prevail, and brinkmanship. Brinkmanship involves a threat of escalation in an attempt to gain an advantage or decision due to the adversary's lack of resolve.[130] This involves aspects of both intentional and inadvertent escalation. The intentional decision to employ brinkmanship involves some increase in intensity, but the advantage rests on the threat of greater escalation. In the event the threat fails to dissuade the adversary, the further escalation occurs which is not intended, but the result of a miscalculation regarding the resolve of the adversary.[131]

The intentional escalation to nuclear war could result from nuclear aggression or direct threats to a nuclear weapons state's survival. Nuclear aggression is a separate concern and direct threats to a nuclear state's survival are not generally considered likely, therefore I do not deal with these issues here.[132]

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[127] Herman Kahn, *On Escalation: Metaphors and Scenarios* (New York: Frederick Praeger, 1965), 3.

[128] Ibid., 4.

[129] Ibid., 4-7.

[130] Ibid..

[131] Thomas C. Schelling, *Arms and Influence* (London: Yale University Press, 1966), 95.

[132] Barry R. Posen, "Inadvertent Nuclear War: Escalation and NATO's Northern Flank," *International Security* 7, no. 2 (Fall 1982), 30.

There are three commonly theorized paths the inadvertent escalation, the security dilemma, the Clausewitzian concept of the nature of warfare, such as of the "fog of war," and pathologies of military organizations.[133] Jeffery Legro adds a fourth path with the impact of military culture on escalation.[134]

1.   The Security Dilemma

The security dilemma results because "the measures that one state takes to defend itself might seem offensive to the state against who they are directed."[135] A spiraling increase of capabilities and readiness results. The balance of advantage between the offense and the defense affect the intensity of the dilemma, as explained in the previous chapter.

During war this dynamic might manifest itself in the escalation of conventional to nuclear war. Barry Posen outlines one way this might occur. In his example, a state's conventional operations unintentionally threaten the adversary's nuclear forces. The adversary perceives this as a deliberate attack on its vital interests and reacts in a manner intended dissuade further attacks. The adversary's reaction is perceived by the state as provocative aggression rather than a response to the initial attacks which produces a cycle of escalation.[136]

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[133] Posen, *Inadvertent Escalation,* 12-16.

[134] Legro, "Military Culture" 109.

[135] Posen, *Inadvertent Escalation,* 12.

[136] Ibid., 14.

2.   The Nature of War

The "fog of war," which Posen defines as "disarray of command, control, communications, and intelligence," complicates escalatory situations.[137] A lack of information forces the delegation of authority down to a level with sufficient data to operate effectively, which decreases the control of high level policy makers. The loss of control and increasing uncertainty regarding the progress of events and increases fears of an enemy surprise attack.[138] Posen states;

> "The fog of war increases the likelihood of inadvertent escalation because misperceptions, misunderstandings, poor communications, (and) unauthorized or unrestrained offensive operations could reduce the ability of civilian authorities to influence the course of the war. It might also precipitate unexpected but powerful escalatory pressures due to the ever higher levels of uncertainty that would develop about the status of the other side's strategic nuclear capabilities as intense conventional conflict unfolds."[139]

Thomas Schelling sees uncertainty as an integral part of conflict.[140] He states that "any transition from peace to war would have...to transverse a region of uncertainty--of misunderstandings or miscalculations or misinterpretations, or actions with unforeseen consequences, in which things got out of hand."[141] His concept of "the manipulation of risk" is based on the challenges faced by states attempting to navigate their way through a crisis with incomplete information.[142] Opaque nuclear proliferation serves to complicate

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[137] Ibid., 20.

[138] Ibid..

[139] Ibid., 22-23.

[140] Schelling, 93.

[141] Ibid., 96.

[142] Ibid., 94-125.

this uncertainty by further limiting information regarding a states nuclear capabilities and intentions.

3.   Military Culture

According to Legro, the organizational culture of the militaries involved in a conflict has better explanatory power regarding whether or not the conflict will escalate to the use of a particular weapons system than do the security dilemma, the nature of war, or military organizational pathologies.[143] He contends that the military's organizational culture establishes attitudes toward the use of particular means of warfare. Legro summaries his concept concisely:

> Where the specific means of warfare are compatible with the dominant war-fighting culture of a country's key military services, that nation is likely to take actions that contribute to escalation. In such situations, the military will emphasize the antagonistic role the other side played, encourage propagandistic use of the incident, and highlight the advantages in escalation. When a type of warfare is antithetical to one side's military culture, that state will support restraint even in the face of provocative enemy incidents. It will suppress information that might encourage escalation, accept accidents as such regardless of evidence, make efforts to communicate good will to the opposing side, and reject any internal proposals to seize propaganda advantages.[144]

The influence of military culture provides a more nuanced explanation, including a mechanism by which states might avoid escalation despite the existence of organizational pathologies or pressures toward the security dilemma.

4.   Organizational Pathologies

Based on organizational theory, this explanation contends that military forces have organizational pathologies which increase the potential for escalation. Proponents of this

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[143] Legro, 110.

[144] Ibid..

perspective contend militaries prefer offensive doctrines because they believe dependence on the offensive results in increased organizational autonomy, size and budgets.[145] Military autonomy can make it difficult to maintain of civil control and to prevent escalation.[146] The arguments of proliferation optimism and pessimism center around whether the proliferation of nuclear weapons produces organizational pathologies among the new nuclear state's military organizations, thereby increasing the risk of escalation to nuclear war.

5.   Command and Control Terminology

A brief review of some of the terminology used in the debate about the unauthorized use of nuclear weapons is in order. Peter Lavoy indicates that examination of the "specific choices new nuclear states make about the readiness of their forces, their command and control systems, and their launch doctrines" enlighten us regarding the risk of unauthorized use.[147] These three factors affect the probability of unauthorized use of nuclear weapons.

Readiness postures range from unassembled warheads to ready-to-launch nuclear weapons. Weapons maintained at a higher state of readiness can be more easily employed, and are more susceptible to unauthorized use. Command and control systems can be assertive or delegative, exercising positive or negative control. "Assertive" systems are centralized, tightly controlled by the central authorities, and more difficult to activate

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[145] Posen, *Inadvertent Escalation,* 16.

[146] Ibid., 19.

[147] Lavoy, 732.

without authorization. "Delegative" systems are decentralized, allowing more control by subordinates, and face a greater risk of unauthorized use. "Positive controls" include the procedures and mechanisms to employ nuclear weapons when their use is desired, while "negative controls" are those which prevent their unauthorized use. Launch doctrines include launch-on-warning and existential deterrence. "Launch-on-warning" doctrines are usually associated with delegative command systems, and an increased probability of unauthorized or accidental use in response to misperceived threats. "Existential deterrence" doctrines are based on the mere existence of nuclear weapons and allow lower states of readiness, more obstacles to employment, and lower risk of unauthorized use.[148]

C.   PROLIFERATION OPTIMISM AND PESSIMISM

1.   Optimism

Optimists makes two arguments, one related to the effectiveness of nuclear deterrence in preventing conventional war and the other related to the ability of new nuclear states to establish effective command and control of their nuclear forces. The following section dismisses the deterrence argument, then deals with the issues of command and control.

a.   Nuclear deterrence

Waltz argues that nuclear deterrence prevents conventional wars. "Deterrence" is a defenders prevention of a challenge by an aggressor through the threat of punishment or the certainty of frustration of the attempt to achieve the objective.[149]

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[148] Ibid., 731-733.

[149] Elli Lieberman, "The Rational Deterrence Theory Debate: Is the Dependent Variable Elusive?" *Security Studies* 3, no. 3 (Spring 1994), 385.

Most often deterrence by punishment is associated with nuclear weapons, while deterrence by denial is concerned with conventional forces. With deterrence by punishment the deterrent value of a threat results from the relationship between the probability of the threat being carried out, the cost imposed by the threat, the likelihood of the aggressor achieving success, and the benefit if the objective is achieved.[150] The probability of a threat being executed rests on the credibility of the deterring state. Credibility is determined by both the state's capability and the state's will, or resolve, to carry out the threat.[151] The perception of resolve is affected by the relative value of the contested interest to the defender as compared to the aggressor.[152]

Waltz contends that states with nuclear weapons do not go to war due to the possibility that if the conflict escalates to a nuclear war "their suffering may be unlimited".[153] He also states that "miscalculation causes wars" and that "nuclear weapons make military miscalculation difficult."[154] According to Waltz, determining the expected degree of damage is easy with nuclear weapons because few are necessary to cause unacceptable suffering, which is sufficient to make conventional war unlikely.[155] If conventional conflict does not occur, escalation to nuclear war is not possible.[156] His

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[150] Charles L. Glaser, "Why do Strategists Disagree about the Requirements of Strategic Nuclear Deterrence?" in *Nuclear Arguments,* ed. Lynn Eden and Steven E. Miller (Ithaca: Cornell University Press, 1989), 109-112.

[151] Ibid..

[152] Stein, 35.

[153] Sagan and Waltz, 7.

[154] Ibid., 6-8.

[155] Ibid..

[156] Ibid., 110.

formulation of deterrence rests entirely on a nearly infinite level of punishment and the certainty thereof, but fails to account for relative value of the interest involved. This gives no credence to the resolve of the defender. Infinite capacity to punish does no harm if it is not used.

Waltz also fails to consider reasons other than security which might lead nuclear weapons states to war, such as domestic politics, or economic interests.[157] History includes many examples of conventional wars fought between nuclear weapons states and non-nuclear weapons states. In several of these conflicts, the non-nuclear weapons state attacked state possessing nuclear weapons; Argentina invaded the British Falkland Islands, China entered the Korean War against the United States, and Egypt and Syria attacked Israel in 1973. There have also been numerous incidents of nuclear weapon states initiating conflict with states not so armed. Examples include the United State's intervention in Korea, Vietnam, Granada, Panama, Iraq, and Haiti, and the Soviet Union's intervention in East Germany, Hungary, Czechoslovakia, and Afghanistan. The list goes on.[158] In the only example of two nuclear armed states in direct conflict, the Soviet Union and China fought a border conflict in 1969. Except for the use of nuclear weapons by the United States at the end of World War II, no nuclear armed state has ever resorted to the actual use of nuclear weapons. Richard Betts observes that in none of these conflicts was the existence of a nuclear weapons state threatened.[159]

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[157] Ibid., 738.

[158] For a review of these conflicts, see Richard K. Betts, "Nuclear Peace and Conventional War," *The Journal of Strategic Studies* 11, no. 1 (March 1988), 82-83.

[159] Betts, 82-83.

In examining the role of nuclear deterrence Feldman reaches two

conclusions: first, "nuclear weapons do not address all of the security challenges a state

faces," and second, "these weapons do provide effective 'existential deterrence' --

averting threats to states' survival."[160] Others also reach the conclusion that nuclear

weapons protect vital interests, but do not prevent low-level military challenges to non-

vital interests, such as conflicts over peripheral territory.[161] The "stability-instability

paradox," which is the self deterrent potential of nuclear weapons with respect to threats

against non-vital interests, explains why this is the case. A state will not risk a nuclear war

to protect an interest which does not threaten its survival because escalation to nuclear

war does risk the state's survival.[162] John Arquilla concludes "that, rather than

engendering great risk of a nuclear holocaust, the presence of weapons of mass

destruction creates a permissive environment for limited conventional conflict."[163]

The argument that nuclear weapons deter conventional wars is refuted by

history. The conclusion that states do not intentionally engage in nuclear wars is

supported by the empirical evidence. This being the case, the route for escalation of

conventional to nuclear war must be unintentional. The optimism-pessimism debate

centers around escalation through the unauthorized use of nuclear weapons.

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[160] Feldman, "Middle East," 217.

[161] See Lavoy, 737-740, Betts, 82, and Alexander L. George and Richard Smoke, "Deterrence and Foreign Policy," *World Politics* XLI, no. 2 (January 1989), 172-173.

[162] Lavoy, 739.

[163] John Arquilla, "Nuclear Weapons in South Asia: More May Be Manageable," *Comparative Strategy* 16, (1997), 27.

b.   Command and control

Waltz contends if a state is capable of producing nuclear weapons, it is also capable of creating effective command and control systems and has sufficient incentive to induce it do so.[164] Jordan Seng articulates reasons why new nuclear states might be capable of developing effective control over their nuclear forces despite a lack of resources.[165] He suggests that "the unique limitations of minor states will actually create operational advantages that constrain and alleviate the very problems that pessimists foresee the limitations generating."[166] The constraints of new nuclear weapons states produce two advantages: small, simple nuclear arsenals and concealment strategies.

Seng contends that not only do new nuclear states have limited resources with which to build nuclear weapons, but they also have the need for limited numbers of weapons. Their adversaries are relatively small states facing the same resource limitations, possessing small arsenals and few lucrative targets worthy of nuclear weapons. Small arsenal sizes produce simplicity in both the types of weapons and the command and control system. Organizational simplicity has three advantages: first, the small number of personnel makes ensuring personal reliability easier, second, intermediate levels of command are unnecessary, allowing direct civilian control, and third, rigid standard operating procedures are unnecessary due to the reduced number of employment options.[167] Cohen and Frankel have identified the tendency of opaque proliferators to

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[164] Sagan and Waltz, 21.

[165] Jordon Seng, "Less Is More: Command and Control Advantages of Minor Nuclear States," *Strategic Studies* 6, no. 4 (Summer 1997).

[166] Ibid., 53.

[167] Ibid., 71-78.

isolate nuclear forces from the military and the other governmental organizations. [168] This

isolation helps to prevent military organizational pathologies from affecting nuclear

forces. [169]

Seng maintains that new nuclear states will rely on concealment strategies

due to technological factors and the impracticality of launch-on-warning strategies. The

technology available to proliferators favors concealment. The technique is more familiar

to most militaries and therefore the more likely to be used. It is relatively easy and cheap

to conceal nuclear weapons, while it is difficult and expensive to develop the intelligence

technologies and precision weapons required for counterforce targeting. Launch-on-

warning strategies require expensive and advanced early warning systems, as well as

hardened communications systems. Even if a new nuclear state has the resources and

resolve to produce the systems required for a launch-on-warning doctrine, the geographic

proximity of its enemies might produce insufficient warning times for a successful

response. [170] Concealment reduces the need for launch-on-warning, allowing more time

for a response and the adoption of a "ride-it-out-and-retaliate" strategy. The reduction in

time pressure also decreases the negative impact of the delegation of launch authority,

allowing for thorough consideration prior to a response. [171]

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[168] Cohen and Frankel, 21-22.

[169] Seng, 76.

[170] Ibid., 67-71.

[171] Ibid., 79.

Opacity has several other advantages. Cohen and Frankel identify one of the characteristics of opaque proliferators as the lack of a public nuclear doctrine. [172] The lack of an espoused nuclear doctrine induces the military to rely on a public doctrine advocating the use of conventional forces. The public reliance on conventional forces increases organizational pressures for the adequacy and readiness of those forces, reducing pressure for a high state of readiness among the nuclear forces. If a state must initially rely on its conventional forces, its nuclear forces must be designed to withstand the initial conventional attack. Opaque nuclear proliferation by its very nature motivates concealment and assertive control to help avoid disclosure.

Seng maintains that the simplistic nature of small nuclear arsenals offsets the decreased potential for nuclear learning. Problems of control will not likely produce inadvertent use during crises because the time and flexibility resulting from the above mentioned advantages allow opportunities for the problems to be addressed.[173]

2. Pessimism

In *The Spread of Nuclear Weapons: A Debate*, Sagan voices two concerns regarding the escalation of conventional conflict to nuclear war. First, as already discussed, states engage in wars against nuclear adversaries.[174] Sagan states, "History suggests that while many states facing nuclear adversaries may well be cautious, some states have nevertheless launched attacks in the face of such uncertainty."[175] Second,

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[172] Cohen and Frankel, 21-22.

[173] Seng, 85.

[174] Sagan and Waltz, 128-129.

[175] Ibid., 128.

conventional wars between nuclear adversaries yield opportunities for the mistaken or unauthorized launch of nuclear weapons, leading to a nuclear war.[176]

Proliferation pessimists cite three reasons why unauthorized use of nuclear weapons might be a problem. First, the influence of the military, which favors readiness over safety, might induce the state to place their weapons at a higher state of readiness. Second, states might place their weapons at a higher state of readiness, adopting launch-on-warning postures and delegative command to compensate for their close proximity to adversaries and the resulting short intervals from warning to response.[177] Launch-on-warning procedures risk an inappropriate response to a false warning of attack and delegative command structures allow the unauthorized launch of weapons by individuals who do not have access to all the pertinent information, or who possess questionable motivation. The higher the state of readiness the more likely an accident will occur. Third, opaque proliferation decreases the opportunities for "nuclear learning."[178] Without the opportunity to exercise nuclear forces and think through nuclear problems, unforeseen events must be dealt with under crisis pressure, increasing the likelihood of mistakes.

"Time urgency" further increases the risk of unauthorized use of nuclear weapons. A decrease in the perceived time available to employ nuclear weapons is created by an increased likelihood of war, a perceived vulnerability of nuclear forces and of command and control systems to attack, and a strategic doctrine which favors early use of nuclear

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[176] Ibid., 128-133.

[177] Ibid., 82. Sagan and Waltz, and Scott D. Sagan, "Correspondence," *International Security* 22, no. 2 (Fall 1997), 200.

[178] Feaver, "Correspondence," 191.

weapons.[179] Time urgency leads to high states of readiness. Vulnerability increases with small arsenal size, close proximity to adversaries, lack of geographic depth of the state, the spread of precision guided conventional munitions, and insufficient resources to harden command and control systems. Time urgency and fear of preemptive attack create pressures for dangerous launch-on-warning procedures and delegative command and control structures, which increase the likelihood of mistaken or unauthorized use.[180]

3.   Nuclear Weapons and Other Causes of Escalation

The arguments of proliferation optimists and pessimists regarding preemptive strikes apply to the security dilemma and escalation. These arguments, and the balance of the advantage of offense relative to defense, were discussed in the previous chapter. In summary, to the extent that nuclear weapons alleviate the advantage to a first strike they decrease the intensity of the security dilemma, making escalation less likely. To my knowledge proliferation optimism and pessimism have not examined the impact of nuclear weapons on military culture as a path to escalation.

According to Legro, the study of new nuclear state's military culture in regards to the use of nuclear weapons in war should provide evidence of the likelihood escalation of a conventional conflict to a nuclear war. A thorough examination of this topic is beyond the scope of this thesis, however, the possible impact of opacity and a nondeclaratory status should be mentioned.

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[179] Feaver, "Command and Control," 178.

[180] Ibid., 178-179.

Two previously cited aspects of opacity and nondeclaratory policy should reduce the efficacy of nuclear weapons use in the military of a new nuclear state following these policies. First, the tendency of opaque nuclear weapons states to separate the military from their nuclear organizations. Second, the inability of the military, in a state which denies its possession of nuclear weapons, to depend on the use of nuclear weapons except as a last resort. If these two tendencies reduce the integration of nuclear weapons into the "dominant war-fighting culture" of the military, they should reduce the probability of inadvertent escalation of conventional conflict to a nuclear war.[181]

D.   EVIDENCE

Evidence drawn from the 1973 Arab-Israeli war can be examined in the light of the arguments presented by proliferation optimism and pessimism. The Middle East is a difficult empirical environment for the argument of proliferation pessimism. The absence of a nuclear armed adversary to Israel decreases the necessity for a rapid nuclear response, and makes the adoption of the strategies predicted by the pessimists less likely. Israel's subsequent reliance on conventional deterrence backed by implied nuclear threats also works against a time sensitive nuclear posture.[182]

Three aspects of the situation in the Middle East should increase the time urgency for Israel. Israel lacks geographic depth, is in close proximity to its adversaries, and in 1973 can be assumed to have had only a small nuclear arsenal. Evidence of a concealment strategy and a doctrine of riding out the first strike then retaliating supports the arguments

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[181] Legro, 110.

[182] Arquilla, 24, and Evron, "Relevance and Irrelevance," 151.

of proliferation optimists. Evidence of a launch-on-warning doctrine, problems with nuclear forces due to crisis management, or indications of the threat and uncertainty spiral lend credence to the arguments of proliferation pessimists. Three aspects of the 1973 war can be examined for evidence regarding the adoption of launch-on-warning doctrines, the lack of nuclear learning, and uncertainty spirals. These are the strategic rocket attacks on Israel by the Syrians, the supposed nuclear alert in Israel, and evidence of a loss of control and awareness by Moshe Dayan resulting from his uncertainty regarding the strategic situation.

1.　　Syrian Strategic Rocket Attacks

The Israeli response to strategic attacks by Syrian rockets on Israeli civilian targets might indicate the level of readiness of Israeli nuclear forces in 1973. Prior to the 1973 Arab-Israeli war, the Soviet Union supplied Syria and Egypt with FROG and SCUD missiles in attempt to counterbalance Israeli superiority in the air. The FROG missile used by Syria had a range of 50 miles and carried a 1,100 pound warhead.[183] From locations in Syria, these missiles could reach Israeli cities and industrial centers. Syria fired three FROG missiles on 6 October, eight on 8 October, and six on 9 October, some of which hit Israeli settlements in Galilee.[184] The random nature of the missile impacts suggested a campaign of terror against Israeli civilians. [185]

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[183] Bar-Siman-Tov, 57.

[184] Ibid., 58.

[185] Dupuy, 554.

The worst threat Israel could have expected from Syria would have been chemical warheads on the missiles. Egypt gave Syria chemical weapons prior to the 1973 war.[186] Had Israel had nuclear forces in a launch-on-warning posture and perceived that the Syrians were attacking with chemical weapons, an Israeli nuclear response might have occurred. The fact that no nuclear response occurred is indicative that the Israeli nuclear forces did not exist, or did exist but were not in a launch-on-warning posture, or that no threat was perceived.

Dupuy indicates that the most likely reason the Syrian rockets hit civilian areas was the very poor accuracy of the FROG missile system. The Syrians were attempting to hit Israeli airfields in the area.[187] Israel did apparently perceive some level of threat, because the Israeli Defense Forces responded with air attacks bombing military and economic targets deep inside Syria, including targets in Damascus.[188] This incident indicates that any existing Israeli nuclear forces were not in a readiness posture conducive to loss of control and spasmodic nuclear launches.

2.   The Israeli Nuclear Alert

There are persistent rumors that Israel initiated a nuclear alert during the darkest hours of the 1973 war. If such an event occurred, it would support the pessimists' concern regarding the lack of nuclear learning in opaque nuclear states. There are several

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[186] Beres, 12.

[187] Dupuy, 554.

[188] Bar-Siman-Tov, 58.

different accounts as to what occurred. Most agree that whatever it was, it happened on 8 October.

Aronson recalls an article published in Time magazine concerning Moshe Dayan. According to the Time report, Dayan, after getting the approval of Golda Meir, issued orders to deploy nuclear missiles.[189] Aronson contends that this story was perpetuated most strongly by Dayan's political adversaries.[190] In an interview, Dayan "absolutely denied that he had issued any such orders."[191]

Hersh maintains the nuclear alert did occur and it was approved by the Israeli Cabinet. In his account the alert was intended to send a signal to the United States and Soviet Union to induce them to intervene with military supplies and warnings to the Arabs, respectively.[192]

Evron disputes Hersh's account, contending instead that Dayan raised the issue to the Cabinet only to have the idea rejected.[193] In Evron's opinion, Israel relied on conventional forces during the 1973 war.[194] He does indicate that the stories of a nuclear alert affected the Arab's post-war thinking, raising interest in the nuclear issue.[195] The ambiguous nature of this event makes it difficult to draw a convincing conclusion.

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[189] Aronson, *Politics and Strategy*, 143.

[190] Ibid., 146.

[191] Ibid., 147.

[192] Hersh, 222-229.

[193] Evron, *Israel's Nuclear Dilemma*, 72.

[194] Ibid..

[195] Evron, "Relevance and Irrelevance," 154.

3.   Moshe Dayan

Related to the nuclear alert story are accounts of Moshe Dayan's actions and mental state during the 1973 war. This event would support the argument regarding the fog of war and the uncertainty spiral. Aronson examines these accounts, which indicate that Dayan became mentally unstable, and finds that they lack credibility. The rumors were again most vociferously repeated by Dayan's political foes.[196]

Hersh reports that Dayan did indeed panic on 8 October and was so desperate he advocated a withdrawal of the Israeli army from the occupied territories for a last ditch defense of the Israeli homeland.[197] There are credible reports that Dayan was extremely worried over the situation in the Golan Heights.[198] His assessment of the situation was so bad that Golda Meir sent retired General Haim Bar-Lev to the front so she could get the perspective of someone she trusted.[199] As a result of his overly pessimistic reports, other Cabinet members came to believe that Dayan had "lost his nerve."[200] In general, it appears that the Israeli leadership thought the situation during the war was far worse than it actually was.[201] This is indicative of uncertainty during the war, but it failed to produce the predicted effect.

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[196] Aronson, *Politics and Strategy,* 144-147.

[197] Hersh, 223.

[198] Dupuy, 451.

[199] Evron, *Israel's Nuclear Dilemma,* 72, and Dupuy, 452.

[200] Dupuy, 451.

[201] Bar-Siman-Tov, 51.

E.   CONCLUSION

The conclusions which can be drawn from this controversial evidence are necessarily tentative. Three factors support the optimists' argument, although this cannot be considered a difficult test for the reasons explained above. First, the fact that Israel has maintained the opacity of their nuclear forces is evidence of a fairly sophisticated concealment strategy. Second, Israel's reliance primarily on conventional forces for their defense indicates a low dependence on nuclear weapons and the necessity for the nuclear forces to ride out initial attacks. Third, the lack of an Israel nuclear response to the Syrian FROG missile attacks, which might have contained chemical weapons, indicates that any existing Israeli nuclear forces were not a hair trigger, launch-on-warning status even during a war.

The rumors concerning the nuclear alert can hardly be considered evidence, since there are ulterior motives for their propagation. While not definitive, the rumors do indicate that a nuclear alert was an unusual state for the Israel nuclear weapons. This would tend to support the supposition that Israeli nuclear forces were normally at a low state of readiness, which also supports the optimist's argument. A nuclear alert in the midst of a crisis would support the pessimist's argument; however, the lack of the prescribed result weakens that support somewhat.

VI. CONCLUSION

A.   SUMMARY

This study shows that the impact of nuclear weapons on strategic stability can be profound. The implications of nuclear proliferation in various situations need to be explored. I examined the effect of Israeli nuclear weapons on three paths to war in the Middle East: preventive attack, preemptive attack, and the escalation of conventional conflict to nuclear war. Because of the paucity of reliable public information, a study of this length can not resolve the debate regarding the impact of nuclear proliferation. However, it can refine the debate.

The situation in the Middle East is unique due to the combination of a history of intense conflict and the long term presence of a military nuclear capability in the region. Generalization of the conclusions drawn from this study should be applied carefully. Although severely tested at times, the Israeli Defense Forces have proven to be capable of defending Israel with conventional means. In situations where the conventional balance favors the state possessing a nuclear capability, no nuclear adversary exists, and the state faces strong incentives to maintain opacity and a nondeclaratory status, the findings of this study are more generally applicable. North Korea might prove to fit this description, if China plays a role in enforcing opacity and a nondeclaratory policy.

This study finds cause both for concern and for hope. There is evidence of military biases toward preventive attack, but these biases prove insufficient to actually cause the attacks. Analysis of the 1967 war illustrates how opaque proliferation decreases the pressure for preventive attack, while simultaneously increasing the risk of miscalculation.

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The evidence supports the assertion of proliferation pessimism that military organizations fail to create survivable forces; however, other evidence suggests that many factors, not merely the vulnerability of the adversary's forces, influence the decision to preempt.

The events of the 1973 Arab-Israeli war can be interpreted as evidence that concern about nuclear weapons reduces the likelihood of preemptive strikes. The continuing uncertainty about the existence of Israeli nuclear weapons is evidence of Israel's use of and success with a concealment strategy. The lack of reliable public information and the unique situation in the Middle East make conclusions regarding the escalation of conventional conflict to nuclear war difficult.

There is evidence that if in existence, Israeli nuclear forces were kept at a low state of readiness. This, and Israel's reliance on conventional forces for its defense, supports the argument that inadvertent escalation is less likely than the pessimists assume. The opacity and nondeclared status of the Israeli nuclear weapons program indicates a concealment strategy, a tendency to separate the military and nuclear organizations, and the inability of the military to depend on the use of nuclear weapons except as a last resort. Proliferation optimism argues that these factors also reduce the probability of inadvertent escalation.

B. RESEARCH AND CONCLUSIONS

This study illustrates the utility of integrating existing theory relevant to specific areas of concern into the nuclear proliferation debate. While this has been done to some extent, the opportunity to rigorously apply well developed theories to the debate could be more fully exploited.

1.   **Preventive Attack**

The examination of preventive attack is an illustration of the usefulness of this integrative approach. A hypothesis about preventive attacks applicable to proliferation optimism is that states in the Middle East, faced with an adversary who is developing nuclear weapons, are likely to refrain from preventive strikes due to fears of retaliation immediately or in the future. Conversely, the hypothesis relevant to proliferation pessimism is that in the same situation, these states will likely execute preventive strikes due to military biases which favor such attacks. These hypotheses require an intimate knowledge of the actual decision making process behind the decision to execute or refrain from a preventive attack, which cannot be found in the public domain. However, Allison's models of decision making are useful in testing the underlying arguments.

The hypothesis derived from the rational actor model is that if states in the Middle East are faced with an adversary who is developing nuclear weapons, they will make preventive attack decisions based on the utility of gained from the attack. This hypothesis can be contrasted with the organizational behavior hypothesis, which is that if states in the Middle East are faced with an adversary who is developing nuclear weapons, they will make their decision whether or not to preventively attack based on the military's input which likely favors executing a strike.

The rational actor hypothesis requires that the evidence show a decision *not* to undertake a preventive attack, since it is not possible to determine if rational decisions or organizational biases produced a decision to attack. The organizational behavior

hypothesis requires evidence not only that a preventive strike occurred, but also that organizational influence led to the decision.

The support for these hypotheses is ambiguous. In the case of the Dimona reactor, the Egyptian military planned to strike the Dimona reactor, indicating a bias toward preventive attacks. However, competing interests led Nasser to forego the attack, suggesting a value maximizing decision.

In the Osiraq case, evidence suggests that military biases toward preventive attacks might be necessary, but are not sufficient to produce preventive attacks. Preceding Begin's election, the Labor government faced the same pressures regarding the Iraqi nuclear program, but did not preventively attack. The extent of Begin's influence on the decision to prevent indicates that while not all biases toward preventive attacks come from the military, the effect is the same. Ultimately, the evidence in the Osiraq case does not support a conclusion regarding whether utility maximization or biases produced the Israeli decision.

Several other lessons are implied by the empirical evidence. The 1967 war is indicative of the potential dangers and benefits of opaque proliferation with respect to preventive attacks. There is evidence Israel already had nuclear weapons while the Egyptians were planning an attack against the Dimona reactor. The Israeli response to such an attack might have been costly to Egypt. The opacity of the Israeli nuclear program produced less motivation for a preventive attack in 1967 than did the relative transparency of the Iraqi nuclear program in 1981. This leads to the conclusion that opaque proliferation decreases the pressure for preventive attack, but increases the risk of

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miscalculation. Levy's factors affecting preventive motivation deserve an in-depth study in these two cases.

2. Preemptive Attack

Offense-defense theory is useful in the study of the impact of nuclear weapons on preemptive attack. Optimism hypothesizes that if the Arab states suspect Israel has nuclear weapons, they will perceive a defensive advantage in Israel's favor and forego preemptive strikes against it. Pessimism hypothesizes that if the Arabs or the Israelis believe there is an advantage in offensive operations, they will preempt regardless of the existence of nuclear weapons. Proliferation pessimism predicts that organizational failures within the military of one state produce vulnerabilities which lead the opposing state to believe there is an advantage to striking first.

The interpretation that in 1973 Sadat's uncertainty regarding Israeli nuclear capabilities caused Egypt's restraint in attacking strategic targets in Israel tends to support the hypothesis that the concerns about nuclear weapons reduce the likelihood of preemptive strikes. If, as some analysis indicates, Egyptian restraint was due to fear of conventional strategic threats, the evidence still lends support to the offense-defense theory assumptions upon which the hypothesis is based, since the perception of a defensive advantage still existed.

Support for the pessimistic hypothesis is uncertain. Israel maintained the perception of an offensive advantage throughout the period in question. In 1967 it preempted; in 1973 it did not, indicating that factors other than an offensive advantage affected decisions about preemptive attacks.

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The failure of Egypt to protect its air force supports the assertion that military organizations fail when attempting to create survivable forces. However, the lack of nuclear weapons makes this only a partial validation of the pessimistic hypothesis. The inability of the Israeli air forces to prevent Egyptian aircraft from taking off during the attack raises questions regarding the potential for successful preemptive attacks on nuclear forces. The continued uncertainty regarding the existence of Israel's nuclear weapons is evidence that organizational pathologies have not produced sufficient vulnerability to overcome other considerations and produce a preemptive attack.

3.   Escalation of Conventional Conflict to Nuclear War

Insufficient empirical evidence exists in the public domain to justify the testing of hypotheses regarding escalation. However, broader theories regarding escalation can be added to the existing debate and examined in the light of the historical evidence to indicate the potential validity of the arguments and a direction for future research.

Seng maintains that new nuclear states will rely on concealment strategies due to technological factors, budgetary constraints, the impracticality of launch-on-warning strategies, and organizational biases of the military. Concealment strategies reduce time pressures and decrease the risk that the delegation of launch authority will lead to inadvertent or unauthorized use of nuclear weapons. Others argue that opaque proliferators lack public nuclear doctrines, inducing military reliance on conventional forces. When the first use of nuclear weapons is not contemplated, there is less pressure for nuclear forces to maintain a high state of readiness. Because they will not be launched

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prior to being attacked, these nuclear forces must be designed to withstand the initial conventional assault.

Opaque nuclear proliferation by its very nature motivates concealment strategies and assertive control to avoid disclosure. Seng maintains that the simplistic nature of small opaque nuclear arsenals offsets the reduced potential for nuclear learning in opaque nuclear states because of the reduction in complexity of the problems under consideration. For Seng, smaller arsenals with limited options do not require as extensive a learning process.

Proliferation pessimists cite three reasons why unauthorized use of nuclear weapons might be a problem. Higher states of readiness, delegative control, and launch-on-warning doctrines might result from military preference for readiness over safety and from time pressures created by the close proximity of the new nuclear states to their adversaries. Pessimists maintain that opaque proliferation decreases the opportunities for nuclear learning, without which unforeseen events during a crisis produce an increased risk for mistakes.

The lack of definitive, publicly available empirical evidence from the Middle East makes conclusions regarding escalation, inadvertent, and unauthorized use are necessarily tentative. Although not considered a difficult test, three factors support the optimists' argument. First, the fact that Israel has maintained the opacity of their nuclear forces is evidence of a fairly sophisticated concealment strategy. Second, Israel's reliance primarily on conventional forces for its defense indicates a low dependence on nuclear weapons. Israel's conventional orientation and nondeclaratory policy do not allow for first strikes

and would require Israeli nuclear forces to ride out initial attacks. Third, the lack of an Israel nuclear response to the Syrian FROG missile attacks in 1973, which could have been misjudged to contain chemical weapons, indicates that if Israel's nuclear forces existed, they were not a hair trigger, launch-on-warning status even during a war.

The rumors concerning the 1973 Israeli nuclear alert can hardly be considered as supporting evidence, since there are ulterior motives for their propagation. The rumors do indicate that a nuclear alert was an unusual condition. This would tend to support the supposition that Israeli nuclear forces normally were at a low state of readiness, which also supports the optimist's argument. A nuclear alert in the midst of a crisis would support the pessimists argument concerning opacity and the lack of nuclear learning; however, the absence of the inadvertent escalation limits the usefulness of the support.

Legro's concepts of military culture and escalation deserve integration into the study of weapons of mass destruction and nuclear proliferation. Opacity and a nondeclaratory policy should reduce the efficacy of the use of nuclear weapons in the military culture of a new nuclear state in two ways. First, there is a tendency for opaque nuclear weapons states to separate the military from their nuclear organizations. Second, in a state which denies the possession of nuclear weapons, the military is unable to depend on the use of nuclear weapons except as a last resort. If these two tendencies reduce the integration of nuclear weapons into the "dominant war-fighting culture" of the military, they should reduce the probability of inadvertent escalation of conventional conflict to a nuclear war.

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C.   IMPLICATIONS

The proliferation of nuclear weapons is an existing fact. Intense efforts by the international community and the Untied States to prevent further proliferation have been, to the best of our knowledge, reasonable successful. However, the indefinite prevention of the spread to nuclear weapons to motivated new states is probably not possible. The overarching influence of opacity and Israel's nondeclaratory policy leads to implications for U.S. policy, ramifications for the future, and provides the impetus for future research in the study of the implications of nuclear proliferation.

1.   Implications for U.S. Policy

As this study has indicated, opacity and a nondeclaratory policy by a de facto nuclear states presents some danger, but also has many benefits. The primary risk of opaque nuclear weapons in the Middle East is the danger of miscalculation during the planning for preventive strikes. If the prevention is planned too late, and the target state has already developed a nuclear capability, it might mistake the preventive strike for a preemptive attack and respond with its nuclear weapons. While this danger is real, the transition period during which the risk is the greatest is limited. In contrast, the benefits of opacity and a nondeclaratory status are numerous and long term.

Opaque nuclear proliferation produces less pressure for adversary states to proliferate in response. Effective concealment of the existence of nuclear weapons allows an adversary to deflect domestic pressure with a plausible denial of the weapons existence, as well as reducing the opportunity for, and justification of, preventive and preemptive attacks. A nondeclaratory status necessarily reduces the states dependence on nuclear

weapons, forcing the public articulation of a conventional doctrine, and requiring that nuclear forces be able to survive conventional attacks. This reduces the risk of escalation by reducing time pressures and the necessity for high states of readiness.

Readiness and survivability might also be improved by the tendency of opaque proliferators to isolate their nuclear forces from their military, thereby sparing the nuclear forces from exposure to military biases. The isolation from the military, and reliance on conventional doctrines, might also affect the military's perception of the acceptability of the use of nuclear weapons. Preventing the integration of nuclear weapons into the military's dominant culture should reduce the risk of escalation.

In view of these benefits, U.S. policy should be to encourage continued opacity and nondeclaratory policies on the part of de facto and new nuclear states. The United States should clearly and *forcefully* communicate its disapproval of any increase in openness regarding nuclear weapons or softening of declaratory policies, and take actions necessary to insure that if new states manage to develop nuclear weapons, they are strongly motivated to keep such developments secret. It is intuitive that the most dangerous states are those which openly brandish their nuclear weapons; however, the implications this action go well beyond the obvious. Open declaration of the possession of nuclear weapons both provides insight into and *affects* the state's nuclear organizational structures, attitudes, and behaviors. The affects are almost universally dangerous. Options short of war to enforce a policy of encouraging opacity and nondeclaratory status are limited, particularly with adversarial states. Continued support of the nuclear nonproliferation regime, international nonproliferation organizations, sanctions, and

negative security assurances are possible tactics. The success of anything short of direct threats may not be effective against states which do no value international norms or opinion.

2.   Implications for the Future

What will result if nuclear nonproliferation and efforts to maintain opacity and nondeclaratory policies fail? Greater transparency helps to alleviate the risks of preventive miscalculation, but as the Osiraq raid demonstrated, it also motivates prevention. Less opacity likely results in more preventive strikes as well as increased domestic pressures on non-nuclear weapons states to develop weapons of mass destruction. Increased transparency might increase the deterrent value of a state's nuclear weapons, but at what cost?[202] If Israel or another state declares its nuclear weapons, and develops a strategy dependent on those weapons, is this likely to increase the risk of escalation? The state might more fully integrate its nuclear weapons into the military, exposing the weapons to the military's organizational biases postulated by the pessimists and increasing the military's cultural acceptance of their use. With less emphasis on concealment, do preemptive strikes become more likely?

Further research is required to more fully explore these questions. The integration of theories applicable to these and other concerns of nuclear proliferation should be a priority for those engaged in the debate. The factors Levy cites as affecting preventive motivation need to be explored, as does Legro's concept of the influence of military culture on escalation, and the impact of opacity and declaratory status on military culture.

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[202] Feldman, *Israeli Nuclear Deterrence.*

Have we just been lucky, as the pessimists suggest, or are there perhaps some mechanisms at work that allow us to avoid nuclear conflagration? The optimists seem to me to be on the right track, however their explanations are not fully convincing. A more detailed integration of the theory surrounding the various nuclear proliferation concerns might lead to more explanatory power.

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